

8536-15

10/16/1981

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

End of Vol I

OCT 16 1981

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Soil Chemical Corporation  
P.O. Box 531  
195 San Pedro Avenue  
Morgan Hill, CA 95037

Gentlemen:

Subject: Methyl Bromide 100  
EPA Registration No. 8536-15  
Your Letter Dated September 30, 1981

The labeling for the application referred to above, submitted in connection with your application for amended registration under Section 3(c)(7)(A) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable since you have agreed that you will submit and/or cite all data required for registration/reregistration of your product under FIFRA Section 3(c)(5) when the Agency requires all registrants of similar products to submit such data.

If the conditions of this amendment are not complied with, the registration will be subject to cancellation in accordance with Section 6(e) of the Act.

A stamped copy of the label is enclosed for your records.

Sincerely,

William E. Miller  
Product Manager (16)  
Insecticide-Rodenticide Branch  
Registration Division (TS-767)

Enclosure

TS-767:WHMILLER:bje:RAVEN:DCR42534:wang1735A:479-2018:10-14-81

CONCURRENCES

SYMBOL							
SURNAME							
DATE							



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

THIS FUMIGANT IS A HIGHLY HAZARDOUS MATERIAL AND MUST BE HANDLED WITH CARE ONLY BY THOSE INDIVIDUALS EXPERIENCED WITH ITS PROPER USE. CONSULT YOUR DEALER REPRESENTATIVE OR SOIL CHEMICALS CORPORATION FOR CORRECT PROCEDURE. BEFORE USING, READ AND FOLLOW ALL LABEL DIRECTIONS AND PRODUCT LITERATURE SPECIFIC TO YOUR PARTICULAR REQUIREMENTS.

**EXTREMELY HAZARDOUS LIQUID AND VAPOR UNDER PRESSURE  
INHALATION MAY BE FATAL OR CAUSE DELAYED LUNG INJURY  
LIQUID AND VAPOR CAUSE BURNS WHICH MAY BE DELAYED**

**OBSERVE THE FOLLOWING PRECAUTIONS:  
DO NOT BREATHE VAPORS:**

1. Methyl Bromide 100 has no appreciable odor. The only with adequate ventilation. Do not enter a treated area without respiratory protection unless you have checked the area with a Methyl Oxide Detector to make sure dangerous concentrations of gas are not present. If there is any doubt, wear a gas mask.

**RESPIRATORY PROTECTION**

A full-face gas mask with an air supply (tank or cylinder) is recommended or wear a full-face gas mask with black canister meeting specifications jointly approved by the Federal Environmental and Safety Administration (formerly the U.S. Bureau of Mines) and by the National Institute for Occupational Safety and Health under the provisions of 29 CFR, PART 11, where the respirator concentration is known to be under 25 by volume (5 lbs. per 100 cu ft.). Read and follow the gas mask manufacturer's recommendations carefully before applying these instructions. Do not use canisters by cranking. Canisters need oxygen be dispensed upon as an identifying sign when a canister gas mask is used.

**DO NOT GET IN EYES, ON SKIN OR ON CLOTHING.**

1. Should shoes or clothing become contaminated, remove or rinse and do not wear again until rinsed outside for several days.
2. DO NOT WEAR CLOVES OF ANY TYPE, ORDINARY RUBBER PROTECTIVE CLOTHING OR BOOTS.
3. DO NOT SPILL or discharge contents outside of area confined for treatment.
4. WEAR SAFETY GLASSES when opening Methyl Bromide 100.
5. KEEP CYLINDERS AWAY FROM HEAT SOURCE, such as heating devices.
6. Always bring an absorbent pad in case of leakage when returning fumigant from inside of a structure. Wear appropriate respiratory protection.
7. Keep animals, children and unqualified people away from areas under treatment until area is certified free of Methyl Bromide 100. (See attention statement).

**WARNING SIGNS**

Fumigated areas must be placarded on all entrances with signs containing at least the signal word DANGER and the "Skull & Crossbones" and the words "Area under fumigation, do not enter until completely vented", the date of fumigation, name of the fumigant used, emergency telephone number for contact, and the name and address of the fumigator. Do not remove warning signs until the fumigated area is completely vented and safe for entry, as indicated by a Methyl Oxide Detector.

Boxes must be placarded with D.O.C. specified warning signs. Warning signs, as indicated from your dealer or Soil Chemicals Corporation.

1. Comply with all local regulations and ordinances.

2. Observe medical and safety precautions in case of these other exposures, and do not allow children which could be affected. Use better exposure and recovery if complete.

3. Inadequately to supply your physician with information on Methyl Bromide 100 available from your dealer or Soil Chemicals Corporation.

**WHEN FUMIGATING SOIL  
OBSERVE THESE PRECAUTIONS:**

1. If possible, operation equipment must adhere to safety standards of oil production and production.
2. If operation cannot meet these standards, the mechanical operation of the tractor and hand tools must be stopped while the tractor and driver are fumigating.
3. Handle this fumigant, the vapor, with the operator "upwind" from the container where there is adequate ventilation.
4. If there are adequate deep water available to wash skin and/or fish eyes. When fumigating well from a tractor, 5 gallons of water must be carried on the tractor and placed where it is readily accessible by addition to water available on the tractor, at least 5 gallons of additional water must be 25 ft. from the tractor back. The water must be drinkable and in containers marked "WATER NOT FOR DRINKING".
5. Check fumigant pressure system for leaks before beginning operation.
6. Do not sit or stand in shade to tank at end of a pipe and fumigant has drained from system following closure of shutoff valve.
7. Trench pulled by the trucks to the end of the field when fumigating must be covered by lifting the plow, then covering the trench with polyethylene film before making the turn for the next row.
8. In case of a rupture of hose or fitting while applying fumigant, immediately stop tractor and repair. Get off tractor and get to a place where the problem can be observed without exposure to fumes. Appropriate first aid and respiratory protection if required, and make necessary repairs.
9. When changing the cylinders be certain they are turned off and fumigant system is not under pressure. Do not open the system when there are people or structures in the area.
10. Prior to removal of hoses, wear warning signs available from Soil Chemicals Corporation.
11. Keep all animals, children and unqualified people away from areas under fumigation during the exposure period and during removal of fumigant.
12. Do not feed domestic animals or wild animals within an EPA tolerance exists for such use. Examples are, but not limited to, peaches or volunteer cover crops growing on soil which has been fumigated or is to be treated for fumigant.
13. NOTE CAREFULLY: Fumigation may temporarily raise the level of ammonia nitrogen and soluble salts in the soil. This is most likely to occur when heavy rates of fertilizer are used. Fertilizer use should be reduced or delayed until the soil has been tested for ammonia nitrogen. To avoid ammonia injury or nitrate intervention, or both, to crops, avoid fertilizers containing ammonium salts and use soil fertilizers containing nitrate until after the crop is well established and the soil temperature is above 65° F. Liming highly acid soils before fumigation elevates pH and reduces and reduces the possibility of ammonia toxicity.

SPECIMEN

**RESTRICTED USE PESTICIDE**  
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 100 FUMIGANT**

ACCEPTED  
OCT 16 1981  
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 85-36-15

**FOR USE AS AN AID IN THE CONTROL OF STRUCTURAL PESTS, HOUSEHOLD INSECT PESTS, STORED PRODUCT PESTS, AND AS A PRE-PLANT SOIL TREATMENT.**

ACTIVE INGREDIENT: METHYL BROMIDE 100%

KEEP OUT OF REACH OF CHILDREN

**DANGER POISON**

SEND FOR A DOCTOR IMMEDIATELY IN CASE OF EXPOSURE

STATEMENT OF PRACTICAL TREATMENT

IF INHALED — Carry Patient To Fresh Air. Call Physician At Once. Make Sure Patient Can Breathe Freely. Keep Patient Warm. Give Artificial Respiration If Breathing Has Stopped. Oxygen Should Be Administered Only By Qualified Personnel.

IF ON SKIN — Immediately Remove All Contaminated Skin Covering Including Shoes, Clothing And Adhesives Or Other Bondages. Wash Skin Thoroughly With Soap And Water. If Irritation Or Blisters Develop, Get Medical Attention. Do Not Reuse Shoes Or Clothing Until Free Of All Contamination.

IF IN EYES — Flush Immediately With Plenty Of Water For At Least 15 Minutes And Get Medical Attention.

NOTE TO PHYSICIAN — Keep Patient At Rest And Under Observation For 24 To 48 Hours.

**SOIL CHEMICALS CORPORATION**  
P. O. BOX 531 MORGAN HILL, CALIF. 95027  
E.P.A. EST. 8536-CA-1, 2, 3, 4, FL-1  
E.P.A. REG. NO. 8538-15  
NET CONTENTS . . . . . LBS.

**ENVIRONMENTAL HAZARD**

The successful use of Methyl Bromide depends upon its containment during the fumigation exposure period. Monitor the area immediately surrounding the fumigation site with a Methyl Oxide Detector (use attention statement for Methyl Oxide Detector) during exposure and on certain occasions to establish that dangerous levels of Methyl Bromide 100 are not present. The high volatility of Methyl Bromide 100 permits it to be vented from spaces being fumigated and to dissipate rapidly with no hazard to surrounding areas with correct monitoring. To avoid injury to fish, or other wildlife do not allow Methyl Bromide 100 to contact bodies of water such as an impoundment. (See instructions under handling and shipping for return of excess Methyl Bromide 100.)

**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 toxic organic compounds in the space being fumigated. Pilot lights and glowing wire heaters should be turned off. Do not apply 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 embrittlement when in contact with structural fumigation and should be removed from the space being fumigated: 1. Foodstuffs. (a) Individual (b) Not for use. (c) Any kind of materials that normally require such components, such as some wood products, some building codes and some sets blocks used for concrete. 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 vulcanized rubber. 3. Ties, hosiery and gloves. Especially leather articles. 4. Leather goods, particularly whetstone or any other leather goods treated with wax or grease. 5. Waxware. Extensive caution should be used in the fumigation of any organic woodlands, and some adverse effect has been noted on the fumigation of wooden walls, floors, brackets, handrails, wooden work, sweaters, shirts and sweater yarn. 6. Vitrified Enamel. These require pre-treatment by a process in which carbon is included in use. 7. Paper. (a) Silver-plating paper. (b) Certain writing papers coated by sulphide processes. 8. Photographic chemicals stored in photo processing equipment (does not include contact film). 9. Rug padding. 10. Cancer risks. 11. Mixed solvents, which occasionally occur in stores. 12. Any materials that may contain reactive sulfur compounds. THESE PRODUCTS MAY CHANGE EFFECTIVENESS OF THE FUMIGANT. Chemical to be avoided — Chlorinated hydrocarbons (highly reactive concentration and contaminating the chloroform). 13. The fumigant is not a material that may develop an odor, but fumigation may be run with a small quantity of the material.

**STORAGE AND RETURN OF FUMIGANT CYLINDERS**

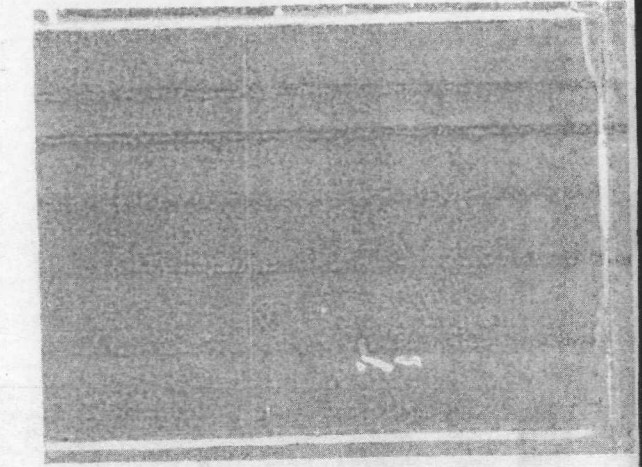
**STORAGE**  
Do not store with food, feeds or clothing. Storage areas should be: (1) Secured by lock and key. (2) Fitted as pest-free storage. (3) Away from dwelling and work areas. (4) Dry and cool. (5) Well ventilated.

**SPILL OR LEAK PROCEDURE**  
Evacuate affected area, use respiratory protection and contact poison. Move to outdoor or to an isolated location. Allow to evaporate. Do not permit re-entry to area until free of fumes.

**RETURN OF CYLINDERS**  
(1) Cylinders use the property of: Soil Chemicals Corp. 2550 E. 220th Street Long Beach, CA 90810 Soil Chemicals Corp. 8770 Bullock Road Highway 25 Olathe, CA 95020 and should be returned promptly by collect auto freight. (2) When a cylinder is empty, the valve should be closed, the safety cap screwed on the valve outlet, and the protective cap placed prior to its return to the shipper. (3) Do not slip any cylinder without a safety cap or valve protection device. (4) When a cylinder is partially full and there is no further requirement for the product, contact Soil Chemicals Corporation for return instructions. (5) Containers should never be refilled by the customer or used for any other product or purpose.

**SHIPPING**  
This fumigant is classified in the U.S. Department of Transportation Hazardous Materials Regulations as Methyl Bromide Liquid, class "B", poison, and its symptoms from specific poisoning, markings and labeling are as follows. Describe empty cylinders on having formerly contained Methyl Bromide Liquid. Do not ship with food, feed or clothing.

**HANDLING**  
(1) The valve protection device and safety cap should be removed only when fumigant is about to be removed from cylinder. (2) Cylinders should never be subjected to rough handling or to abnormal mechanical shock such as dropping, hammering, dragging or sliding. (3) Rise legs, hooks, lugs, and other handling devices should not be used for unloading cylinders. (4) Do not use a truck, fork lift, or similar device to which the cylinders can be firmly secured, should be used for repositioning the fumigant cylinders. (5) Never repair or heat the bottom in an aid to removal from cylinder. Serious valve damage and possible leakage may occur.



ACCEPTED  
OCT 16 1981  
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 85-36-15

**POISON**

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METHYL BROMIDE LIQUID  
7-14-81

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## ENVIRONMENTAL HAZARD

The successful use of Methyl Bromide depends upon its containment during the fumigation exposure period. Monitor the area immediately surrounding the fumigation site with a halide detector (see operation statement for halide detector use) during exposure and aeration periods to establish that dangerous levels of methyl bromide are not present. The high volatility of Methyl Bromide 100 permits it to be vented from spaces being fumigated and to dissipate rapidly with no hazard to surrounding areas with correct monitoring. To avoid injury to fish or other wildlife do not allow Methyl Bromide 100 to contact bodies of water such as an impoundment. (See instructions under handling and shipping for return of excess Methyl Bromide 100.)

## 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 undesirable odors when encountered in structural fumigation and should be removed from the space being fumigated:

1. **Foodstuffs:** (a) Iodized salt (b) Full fat soy flour (c) Any kinds of materials that contain reactive sulfur compounds, such as some soap powders, some baking soda and some salt blocks used for coffee lines.
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 reticulated rubber.
3. Fur, horsehair and allures. (Especially leather pillows.)
4. Leather goods: (a) Heavy white kid (b) any other leather goods tanned with sulfur process.
5. Woolsens: Engineered wools should be shed in the presence of any organic woolsens, and some odors after handling woolens such as sweaters, coats, blankets, handkerchiefs, and woolens should be removed.
6. Viscose Rayon: These rayon products are manufactured by a process in which carbon bisulphide is used.
7. Paper: (a) Silver printing papers (b) carbon writing papers cured by sulphide processes.
8. Photographic chemicals to used in color processing (does not include camera film).
9. Rug padding.
10. Cinder blocks.
11. Mixed concrete: Rich concrete with alkalis.
12. Any materials that can be damaged by fumigation.

THESE PRODUCTS MAY RENDER EFFECTIVENESS OF THE FUMIGANT.

Chemical materials — charcoal absorbs the Methyl Bromide reducing the effective concentration and contaminating the charcoal.

13. 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.

## STORAGE AND RETURN OF FUMIGANT CYLINDERS

### STORAGE

Do not store with food, feed or clothing. Storage areas should be:

- 1) Secured by lock and key.
- 2) Padded or padded storage.
- 3) Away from dwelling and work areas.
- 4) Dry and cool.
- 5) Well ventilated.

### SPILL OR LEAK PROCEDURE

Evacuate affected area, use respiratory protection and correct program. Move cylinder outdoors or to an isolated location. Allow to evaporate. Do not permit re-entry to area until free of fumes.

### RETURN OF CYLINDERS

- 1) Cylinders are the property of Soil Chemicals Corp. 2040 E. 220th Street Long Beach, CA 90810 Soil Chemicals Corp. 8770 Bobo Road Highway 23 Gilroy, CA 95020
  - 2) Soil Chemicals Corp. 76 10 Highway 41 North Palmetto, Florida 33561
- and should be returned promptly by collect auto freight.
- 2) When cylinder is empty, the valve should be closed, the safety cap screwed on the valve outlet, and the protective bonnet replaced prior to its return to the shipper.
  - 3) Do not ship any cylinder without a safety cap or valve protection bonnet.
  - 4) When a cylinder is partially full and there is no further requirement for the product, contact Soil Chemicals Corporation for return instructions.
  - 5) Containers should never be refilled by the consumer or used for any other product or purpose.

### SHIPPING

This fumigant is classified by the Department of Transportation as Hazardous Materials Regulations as Methyl Bromide Liquid, Class 2.2, poison and no exceptions. See specification packaging, marking and labeling on High Purity empty cylinders. Do not ship partially contained Methyl Bromide Liquid. Do not use with food, feed or clothing.

### HANDLING

- 1) The valve protection bonnet and safety cap should be removed only when fumigation is about to be removed from cylinders.
- 2) Cylinders should never be subjected to rough handling or abnormal mechanical shock such as dropping, bumping or jarring.
- 3) Rope slings, hooks, lugs, and other handling devices should never be used for unloading cylinders.
- 4) A suitable hand truck, beam truck, or similar device which the cylinders can be firmly secured, should be used for transport of heavy cylinders.
- 5) Never insert a tool into the bonnet as an aid to removal from cylinder. Serious valve damage and possible leakage may occur.

## AERATION

At the end of the exposure period remove all seals and open all doors and windows that are operational. Allow for complete ventilation. Use ventilation fans whenever possible to remove fumigant from dead air pockets. To determine the completeness of aeration, use a suitable halide gas detector.

Wear a gas mask during aeration or if there is any doubt as to completeness of aeration. Certain materials absorb Methyl Bromide during fumigation and desorption during aeration may cost for extended monitoring and aeration periods.

**HALIDE GAS DETECTOR:** Color of the flame is an index of the concentration of Methyl Bromide present. The following tabulated information provides on index of flame color and concentration of Methyl Bromide present:

METHYL BROMIDE P.P.M.	LB./1000 CU. FT.	FLAME COLOR IN DAYLIGHT*
0	0.00425	—
25	0.0125	Moderate green
50	0.031	Green
125	0.075	Strong green
250	0.125	Strong blue-green fringe
500	0.25	Strong blue-green
800	0.25	Blue

\* Nighttime color is identical, but allowance must be made for the bluish cast of the flame itself.

**DRAGGER GAS DETECTOR:** Hand Pump and Detector Tube, range: 5 to 100 p.p.m. Methyl Bromide may be detected at the Threshold Limit Value (TLV) of 5 p.p.m. DETECTORS AVAILABLE FROM SOIL CHEMICALS CORPORATION.

## DIRECTIONS FOR USE

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

## SPACE FUMIGATION

**AREAS TO BE FUMIGATED:** Under sealed tarpaulins in flour mills, feed mills, grain mills, textile mills, warehouses, boxcars, fumigation vaults, flat or upright bulk grain storages, tobacco warehouses, and cargo ships, also for use in fumigating furniture, bedding, and clothing.

## INSECTS AND PESTS CONTROLLED:

<ul style="list-style-type: none"> <li>••••• <i>Confused and Red Flour Beetles</i></li> <li>••••• <i>Drain Pipe Weevils</i></li> <li>••••• <i>Collared Weevils</i></li> <li>••••• <i>Cowpea Weevils</i></li> <li>••••• <i>Granary Weevils</i></li> <li>••••• <i>Lesser Grain Borers</i></li> <li>••••• <i>Lesser Mealworms</i></li> <li>••••• <i>Longhorn Beetles</i></li> <li>••••• <i>Mealworms</i></li> <li>••••• <i>Old World Flour Beetles</i></li> <li>••••• <i>Oleander Weevils</i></li> <li>••••• <i>Orchard Flea Beetles</i></li> <li>••••• <i>Carpet Beetles</i></li> <li>••••• <i>Case and Rugs</i></li> <li>••••• <i>Woolly Abers</i></li> <li>••••• <i>Woolly Abers</i></li> <li>••••• <i>Woolly Abers</i></li> </ul>	<ul style="list-style-type: none"> <li>••••• <i>Darkling Beetles</i></li> <li>••••• <i>Angoumois Grain Moth</i></li> <li>••••• <i>Naval Orange Worm</i></li> <li>••••• <i>Broodfly sp.</i></li> <li>••••• <i>Crowfoot Weevil</i></li> <li>••••• <i>Rusty Grain Beetle</i></li> <li>••••• <i>Red Flour Beetle</i></li> <li>••••• <i>Lesser Grain Borer</i></li> <li>••••• <i>Longhorned Grain Beetle</i></li> <li>••••• <i>Longhorned Flour Beetle</i></li> <li>••••• <i>Japanese Weevil</i></li> <li>••••• <i>Mediteranean Flour Moth</i></li> <li>••••• <i>Cowpea</i></li> <li>••••• <i>Flat Grain Beetle</i></li> <li>••••• <i>Golden Ham Beetle</i></li> <li>••••• <i>Tobacco Beetle</i></li> <li>••••• <i>White Fingred Beetle</i></li> <li>••••• <i>Bull Flea</i></li> <li>••••• <i>Aspid</i></li> <li>••••• <i>Aspid</i></li> <li>••••• <i>Bombus Shrikebeetle</i></li> </ul>	<ul style="list-style-type: none"> <li>••••• <i>Pink Boll Worm</i></li> <li>••••• <i>Parasitic Taper Moth</i></li> <li>••••• <i>Meloid Bugs</i></li> <li>••••• <i>Vegetable Miner</i></li> <li>••••• <i>Leaf Miner</i></li> <li>••••• <i>Flour Moth</i></li> <li>••••• <i>Pan Weevils</i></li> <li>••••• <i>Knapweed</i></li> <li>••••• <i>Tringidinae sp.</i></li> <li>••••• <i>A. albopictus sp.</i></li> <li>••••• <i>Cigarette Beetle</i></li> <li>••••• <i>Peach Twig Borer</i></li> <li>••••• <i>Lesser Grain Borer</i></li> <li>••••• <i>Pan Weevils</i></li> <li>••••• <i>Longhorned Grain Beetle</i></li> <li>••••• <i>House Flea Beetle</i></li> <li>••••• <i>Fruit Flies of the Family Tephritidae</i></li> <li>••••• <i>(quarantine species)</i></li> <li>••••• <i>Bombus Shrikebeetle</i></li> </ul>
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## IMPORTANT

Shipment, inland ship or shipboard fumigation is also governed by U.S. Coast Guard Regulations. Refer to and comply with these regulations prior to fumigation.

## PROCEDURES

### Ship

- Prefumigation Procedures**
- Prior to fumigating a vessel for insect 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 will not be fumigated unless all crew members are removed from the vessel. The crew members will not be allowed to reoccupy the vessel until the vessel has been properly aered, and a determination has been made by the master of the vessel and the fumigator that the vessel is safe for occupancy.
  - The person responsible for the fumigation must notify the master of the vessel, or his representative, of the requirements relating to personal protection equipment\*, detection equipment and 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 inspection, and first aid measures must be discussed with and understood by the master of the vessel or his representative.
  - During the fumigation or use of a manned vessel leaves port, the person in charge of the fumigation shall ensure that a qualified person using gas or vapor detection equipment with spaces adjacent to spaces containing fumigated cargo and all regularly occupied spaces for fumigation leakage. If leakage of the fumigant is detected, the person in charge of the fumigation shall take action to correct the leakage, or shall inform the master of the vessel, or his representative, of the leakage so that corrective action can be taken.
  - If the fumigation is not completed and the vessel departed before the manned vessel leaves port, the person in charge of the vessel shall advise that at least two units of personal protection equipment and one gas or vapor detection device, and a person qualified in their operation be on board the vessel during the voyage.

### Precautions and Procedures During Voyage

If necessary to enter holds prior to discharge, lean spaces directly above grain surface for fumigant concentration, using appropriate gas detection and personal safety equipment. Do not allow entry to fumigated areas without personal safety equipment, unless fumigant concentrations are at safe levels, as indicated by a suitable detector.

\* Personal protection equipment means a gas mask or respirator for the fumigator, jointly approved by the Mining Enforcement and Safety Administration and the National Institute of Occupational Safety and Health.

## RATE OF APPLICATION METHYL BROMIDE 100

COMMODITY	Examples of Parts Contained	Dosage in lbs. per 1000 cu. ft.	Exposure Time in Hours	Minimum Temperature in °F	Remarks
Bears & pack dry for example, lard, tallow, blackens, greases, etc.	Indian meal moth, Almond moth, curcoid weevil	3 3	24 24	60 40	12
Cloves	Indian meal moth, Sawtoothed grain beetle	1-2	12-24	60	24
Cocoa beans (bags)	Tobacco moth, Sawtoothed grain beetle	1½	12-24	60	12
Flour, baked for example	Indian meal moth, Almond moth, Dried fruit beetle, Sawtoothed grain beetle	1½	12-24	60-58	
Flour and meal products (bags, packages)	Flour beetles, Sawtoothed grain beetle, Indian meal moth	1-2	12-24	60	24
Shells	Indian meal moth, Angoumois grain moth, Cornary weevil	2	24	60	12
Barley, Oats, Rice, Rye, Wheat	Flour beetles, Rice weevil, Sawtoothed grain beetle	3	24	60	Use based on-orientation
Ocean scargens (Mils)	Lesser grain borer, Indian meal moth, Curcoid weevil	4	24	60	for both bins
Nuts & seeds	Hair of orange worm, Almond moth, Dried fruit beetle, Curcoid weevil, Curcoid weevil	3½	12-24	60	24
Processed Flour	Sawtoothed grain beetle, Cigarette beetle, Indian meal moth	1-2	12-24	60	
Raw Flour	Tobacco moth, Tobacco beetle	2	48-72	45-50	84
Hay (Alfalfa)	Sawtoothed grain beetle, Angoumois grain moth	4	4	70	24
Leaves	Lycia or Powder pest beetles	2	24-36	60	12
Mix, such as turles; bag; wood saw	Indian meal moth, Lycia or Powder pest beetles	3-4	24	60	
Cotton and Cotton seed	Indian meal moth, Cigarette beetle	3	24	60-50	47-54
Wool	Indian meal moth	4	4	60*	60
Wool	Indian meal moth	1-2	12-24	60	60
Cigarette beetle		1	18-24	60	12
AMS. SPAC. FUMIGATION					
Indian meal moth	Indian meal moth	1	10	60 and above	
Woolen goods	Woolen goods	1	12	50-59	
100,000 to 100,000 cu. ft.		1.5	12	40-49	

NOTE: The above dosages are for insect control for rodents, birds, moths, and other warm-blooded animals, 1 lb./1000 cu. ft. with six hours exposure should be sufficient. At temperatures below 60°F (15.5°C) the dosage should be increased by 1 lb. (227 grams) per thousand cubic feet (28.3 m³ meters) for every 10°F (5.5°C) change in temperature.

**Box Cars**

Fumigate static only, do NOT fumigate in transit

Steel	Sawtoothed grain beetle	3-3½	18-24	60	4
Wood	Flour beetles, Indian meal moth	3½-4½	18-24	60	4
Vans, Trailers**	Sawtoothed grain beetle, Flour beetles, Indian meal moth	1-3	18-24	60	4
Vacuum chambers	Sawtoothed grain beetle, Flour beetles, Indian meal moth	1-3	3	62	4
Cargo Ships	Sawtoothed grain beetle, Flour beetle, Indian meal moth	1	10	60 and above	
Do Not Fumigate Underway	Sawtoothed grain beetle, Flour beetle, Indian meal moth	1.5	12	40-49	

\* Accidion time can be shortened if the fumigated area is determined to be free of Methyl Bromide by a suitable Methyl Bromide detector. If no operation time is given in table, a suitable Methyl Bromide detector must be used to determine when operation is completed. An operation time of 48 hours before offering to consumer.

\*\* Do not move trucks, vans, or trailers during fumigation. They must be completely aered before movement is allowed.

1/1/81