

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

22 SEP 1988

Dennis K. Prober
Van Waters & Rogers, Inc.
Subsidiary of UNIVAC
2256 Junction Avenue
San Jose, CA 95131

Subject: Methyl Bromide Registration Standard
NAMCO Namfume
EPA Registration No. 550-131
Your Application of July 19, 1988

Dear Mr. Prober:

Your submission has been reviewed and found to be acceptable for the product listed above.

Enclosed for this product is stamped, approved labeling. Incorporate the following comment and submit five copies of finished printed labeling for our records.

Under "Disposal" revise "Pesticide wastes are acutely hazardous." to "Pesticide wastes are toxic."

You are reminded that an application manual must be provided to applicators who use this product. You should contact one of your suppliers and have them provide you with their approved application manual for distribution.

Sincerely,



Jeff Kempter
Product Manager (32)
Antimicrobial Program Branch
Registration Division (TS-767)

Enclosure

TS-767C:APB:WFrancis:wcf:Rm.711:557-6909:9-21-88

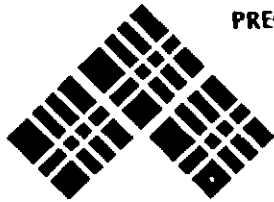
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CONCURRENCES

SYMBOL							
NAME							

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**.



PRECAUTION AL USUARIO: Si usted no lee ingles, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

NAMCO[®]

Namfume

(Methyl bromide odorized with .5% chloropicrin)

For use as a pre-plant soil treatment and as a fumigant for structures in which the food- and feedstuffs have been removed.

FIVE INGREDIENT: Methyl bromide 99.5%
INERT INGREDIENT: Chloropicrin5%

KEEP OUT REACH OF CHILDREN, IRRESPONSIBLE PERSONS AND PETS

DANGER  **POISON**  **PELIGRO**

In all cases of over-exposure, get medical attention immediately. Take person to a doctor or emergency treatment facility.

STATEMENT OF PRACTICAL TREATMENT

IF INHALED: Get exposed to fresh air. Keep warm. Make sure person can breathe freely. If breathing has stopped, apply artificial respiration. If not unconscious, rinse mouth out with water. Do not give anything by mouth to an unconscious person.

IF ON SKIN: Immediately remove contaminated clothing, shoes, and any other item on 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 over-exposures 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 the product MSDS for additional information.

Formulated by

Van Waters & Rogers Inc.

subsidiary of **UNIVAR**

Seattle, WA 98104

EPA Reg. No. 550-131
EPA Est. No. 550-CA-1



GROSS WT	TARE WT	NET WT

PRECAUTIONARY STATEMENT

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER

Extremely hazardous liquid and vapor under pressure. Do not breathe vapor, or cause serious acute illness or delayed lung, nerve or brain injury. Liquid or skin or eye injury which may have a delayed onset. Do not get liquid on skin.

This product contains chloropicrin as a warning odorant. Chloropicrin may be in the respiratory tract, and even at low levels can cause painful irritation to the eyes. If these symptoms occur, leave the fumigation area immediately. Do not allow persons until monitoring shows levels to be lower than 5 ppm for methyl bromide and chloropicrin.

RESPIRATORY PROTECTION: If the concentrations of methyl bromide and chloropicrin in the area, as measured by a pump and the appropriate detector tubes (for example, Kizagawa, MSA and Sensidyne), do not exceed 5 ppm (20 mg/M3 for methyl bromide and 0.1 ppm for chloropicrin), no respiratory protection is required. If the above concentration at any time, or the concentration is unknown, all persons in the fumigation area must wear a NIOSH/MSHA approved self-contained breathing apparatus (SCBA) or combination respirator or evacuate the area. Protective clothing is required to be worn any time the area is being fumigated.

PROTECTIVE CLOTHING: Methyl bromide and chloropicrin may be trapped in clothing, or cause serious acute illness or delayed lung, nerve or brain injury. Liquid or skin or eye injury which may have a delayed onset. Do not get liquid on skin. Wear loose, long-sleeved shirts, long trousers and socks that are clean, dry, and disposable clothing. Do not wear jewelry, gloves or other gas confining equipment. Respiratory protection is not required, wear full-face shield for eye protection. After exposure, immediately remove clothing, shoes and socks. Do not reuse clothing until thoroughly decontaminated by airing and washing. Drenched shoes should be decontaminated and should be disposed of properly.

REQUIREMENT FOR BACK-UP PERSONNEL IN ENCLOSED SPACES: When fumigating enclosed spaces (e.g., homes and other structures, greenhouses, vaults, chambers, cars, ships, and other transport vehicles, and tarpaulin-covered goods), two persons must be present during introduction of the fumigant, initiation of fumigation, and during re-entry. Two persons do not need to be present if monitoring shows the area being fumigated.

PLACARDING/POSTING REQUIREMENT: When using methyl bromide as a fumigant, placard or post all entrances to the fumigated area with signs in English and Spanish:

1. The signal word DANGER/PELIGRO and the skull and cross-bones symbol.
2. The statement, "Area under fumigation, DO NOT ENTER/NO ENTREE"
3. The date of fumigation
4. Name of fumigant used, i.e., odorized methyl bromide with chloropicrin
5. Name, address, and telephone number of the applicator
6. Additional information required by local or state regulations

Railcars must be placarded with D.O.T. specified warning signs. Contact Van Waters & Rogers for appropriate signs.

RE-ENTRY, AERATION AND PLACARD REMOVAL: Do not remove placards until domestic animals or unprotected persons until aeration is complete—see RESPIRATORY PROTECTION and PROTECTIVE CLOTHING above. Only a certified applicator or someone who is permitted to remove placards and only when the fumigated area is aerated to 5 ppm for methyl bromide and 0.1 ppm for chloropicrin are present in the air space and, when least treated goods, incompletely aerated goods may be moved, however, the placards with the goods to the new site. Workers who transfer or handle incompletely aerated goods must take the appropriate measures must be taken (i.e., ventilation or respiratory exposure from exceeding 5 ppm methyl bromide or 0.1 ppm chloropicrin. Trucks should not be run over the road before completely aerated.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with the label.

This fumigant is a highly hazardous material and should be used only by individuals who are properly trained and equipped. Before using, you must read and obey all label precautions.

All persons working with this fumigant must be knowledgeable about the hazards of this fumigant and the use of required respiratory equipment and detection devices, emergency procedures, and the use of this fumigant.

Do not use in sites which may be used for the storage or transportation of food.

Conditions of Sale and Warranty

The Directions for Use of this product reflect the opinion of experts based on field use and tests to be reliable and should be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, loss of effectiveness, or other unintended consequences may result because of differences in soil conditions, presence of other materials, or the manner of use or application all of which are beyond the control of the Seller. All such risks shall be assumed by the Buyer.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THIS MATERIAL OR THE RESULTS THEREOF. BUYER ASSUMES ALL RISKS OF USE AND/OR HANDLING OF THIS MATERIAL WHEN SUCH USE OR HANDLING IS CONTRARY TO LABEL RESTRICTIONS.

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PRECAUTIONAL USUARIO: Si usted no lee Ingles, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

NAMCO®

Namfume

(Methyl bromide
odorized with .5% chloropicrin)

For use as a pre-plant soil treatment and as a fumigant for structures in which the food- and feedstuffs have been removed.

ACTIVE INGREDIENT: Methyl bromide 99.5%
INERT INGREDIENT: Chloropicrin 0.5%

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KEEP OUT REACH OF CHILDREN, IRRESPONSIBLE PERSONS AND PETS

DANGER POISON PELIGRO

In all cases of exposure, get medical attention immediately. Take person to a doctor or emergency treatment facility.

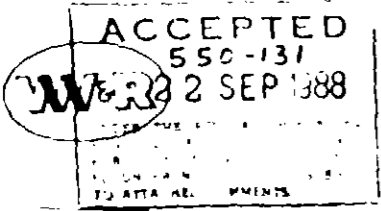
STATEMENT OF PRACTICAL TREATMENT

IF INHALED: Get fresh air immediately. Move person to fresh air. If breathing is difficult, give oxygen. If breathing is stopped, give artificial respiration. Call a doctor immediately.

IF ON SKIN: Wash immediately with plenty of water. Remove contaminated clothing. Call a doctor immediately.

IF IN EYES: Flush immediately with plenty of water for at least 15 minutes. Call a doctor immediately.

NOTE TO PHYSICIAN: Methyl bromide is a potent systemic and respiratory irritant. It is a powerful asphyxiant. It is a potent irritant to the mucous membranes. It is a potent irritant to the skin. It is a potent irritant to the eyes. It is a potent irritant to the respiratory tract. It is a potent irritant to the central nervous system. It is a potent irritant to the heart. It is a potent irritant to the lungs. It is a potent irritant to the kidneys. It is a potent irritant to the liver. It is a potent irritant to the stomach. It is a potent irritant to the intestines. It is a potent irritant to the bladder. It is a potent irritant to the reproductive system. It is a potent irritant to the immune system. It is a potent irritant to the endocrine system. It is a potent irritant to the nervous system. It is a potent irritant to the circulatory system. It is a potent irritant to the respiratory system. It is a potent irritant to the digestive system. It is a potent irritant to the excretory system. It is a potent irritant to the integumentary system. It is a potent irritant to the skeletal system. It is a potent irritant to the muscular system. It is a potent irritant to the connective tissue system. It is a potent irritant to the lymphatic system. It is a potent irritant to the endocrine system. It is a potent irritant to the nervous system. It is a potent irritant to the circulatory system. It is a potent irritant to the respiratory system. It is a potent irritant to the digestive system. It is a potent irritant to the excretory system. It is a potent irritant to the integumentary system. It is a potent irritant to the skeletal system. It is a potent irritant to the muscular system. It is a potent irritant to the connective tissue system. It is a potent irritant to the lymphatic system.



Formulated by
Van Waters & Rogers Inc.
subsidiary of UNIVAR
Seattle, WA 98104
EPA Reg. No. 550-131-AA

This product contains chloropicrin as a warning odorant. Chloropicrin may be irritating to the upper respiratory tract, and when at low levels can cause painful irritation to the eyes, producing tearing. If these symptoms occur, leave the fumigation area immediately. Do not allow re-entry of unprotected persons until monitoring shows levels to be lower than 5 ppm for methyl bromide and 0.1 ppm for chloropicrin.

RESPIRATORY PROTECTION: If the concentrations of methyl bromide and chloropicrin in the worker area, as measured by a pump and the appropriate detector tubes (for example, Draeger, Matheson-Knagawa, MSA and Sensidyne), do not exceed 5 ppm (20 mg M3) for methyl bromide or 0.1 ppm (0.3 mg M3) for chloropicrin, no respiratory protection is required. If the above concentrations are exceeded at any time, or the concentration is unknown, all persons in the fumigation area must wear a NIOSH/MSHA approved self-contained breathing apparatus (SCBA) or combination air-supplied SCBA respirator or evacuate the area. Protective clothing is required to be worn any time respiratory protection is required.

PROTECTIVE CLOTHING: Methyl bromide and chloropicrin may be trapped inside clothing and cause skin injury. Wear loose, long-sleeved shirts, long trousers and socks that are cleaned after each wearing, or disposable clothing. Do not wear jewelry, gloves, or other gas-containing apparel. If full-face respiratory protection is not required, wear full-face shield for eye protection when handling liquid fumigant. After exposure, immediately remove clothing, shoes and socks. Do not reuse contaminated clothing until thoroughly decontaminated by airing and washing. Dirty and shoes cannot be adequately decontaminated and should be disposed of properly.

REQUIREMENT FOR BACK-UP PERSONNEL IN ENCLOSED SPACES: When used for fumigation of non-enclosed spaces (e.g., homes and other structures, greenhouses, warehouses, trailers, and trucks, cars, ships, and other transport vehicles, and tarpaulin-covered goods), 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 re-entry. Two persons do not need to be present if monitoring is conducted remotely (outside the area being fumigated).

PLACARDING/POSTING REQUIREMENT: When using methyl bromide as a space fumigant, the applicator must placard or post all entrances to the fumigated area with signs bearing in English and Spanish:

1. The signal word **DANGER/PELIGRO** and the skull and cross-bones symbol.
2. The statement "Area under fumigation, **DO NOT ENTER/NO ENTRÉE**".
3. The date of fumigation.
4. Name of fumigant used, i.e., odorized methyl bromide with chloropicrin.
5. Name, address, and telephone number of the applicator.
6. Additional information required by local or state regulations.

Railcars must be placarded with DOT specified warning signs. Contact Van Waters & Rogers, Inc. for appropriate signs.

RE-ENTRY, AERATION AND PLACARD REMOVAL: Do not remove placards or allow re-entry of domestic animals or unprotected persons until aeration is complete—see **RESPIRATORY PROTECTION** and **NOTICE TO CLOTHING** above. Only a certified applicator or someone under his/her supervision is permitted to remove placards and only when the fumigated area is aerated completely. Aeration is complete when monitoring of each fumigation site or vehicle determines that less than 5 ppm methyl bromide and 0.1 ppm chloropicrin are present in the air space and, when feasible, in the mass of the treated goods. In completely aerated goods, holes may be marked. However, the placards must be transferred with the goods to the new site. Workers who transfer or handle incompletely aerated goods must be informed and appropriate measures must be taken to assist them not to re-enter protected area until exposure levels are below 5 ppm methyl bromide and 0.1 ppm chloropicrin. Trucks, vans and trailers are not to be re-used until they are completely aerated.

ENVIRONMENTAL HAZARDS: The fumigant is not flammable, but it is toxic to fish, birds, bees, and other aquatic life. Do not use this product in or near water, and do not use it in areas where it could come into contact with water. Do not use this product in areas where it could come into contact with water. Do not use this product in areas where it could come into contact with water.

This product is toxic to fish, birds, bees, and other aquatic life. Do not use this product in or near water, and do not use it in areas where it could come into contact with water. Do not use this product in areas where it could come into contact with water.

PHYSICAL HAZARDS: Contains under pressure. Do not use in areas where heat or high pressure could puncture or rupture container. Exposure to temperatures above 133°F may cause rupture.

CHEMICAL HAZARDS: This product is non-flammable. There is no danger from the fumigant when used at concentrations. However, flames and other heat sources above 300°F can cause decomposition of this product to form hazardous and/or poisonous gases which can damage items in the space being fumigated. Pilots and ground crew members should be alerted to the presence of this fumigant in aircraft. Fumigant gas remaining in the cargo area of a transport vehicle should be fully ventilated. Do not seal any container the fumigant is injected into the structure. Do not apply fumigant directly to metal containers or cause of possible fire. Use extra care when using this fumigant in the liquid form. The vapors may be fumigant at a rate which exceeds the capacity of the container and may cause injury. Do not use this product in areas where it could come into contact with water.

Materials which should not be subjected to fumigation

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Materials that react adversely to this product:

This product may react with some materials. Do not use this product in areas where it could come into contact with materials which are known to be reactive. Do not use this product in areas where it could come into contact with materials which are known to be reactive. Do not use this product in areas where it could come into contact with materials which are known to be reactive.

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Remove the following before fumigation:

1. Puppies, birds, fish and other pets
2. All plants including bulbs and seeds
3. Food and foodstuffs not sealed in metal or glass
4. Medicines not sealed in metal or glass
5. Automobiles

Note: Medicines in plastic containers and glass containers that are not metal or glass may inadvertently be exposed during the fumigation; they should be disposed of promptly.

Materials that react adversely to this product:

This product may react with some substances to cause unpleasant odors or other deleterious effects. For this reason the following list is provided as a guide to those materials which should not normally be exposed to this product. Because so many of the older materials mentioned below have been replaced by newer synthetic materials it is worthwhile for the fumigator to ascertain whether or not the listed material is really present. Should there be any question as to the possible reactions of a material in question, there are three options available. The first is the preferred removal of the material during the fumigation. The second is to perform a small scale test fumigation of the material in question. The third choice is to inform the owners or their agent of possible adverse effects and allow the owners or their agent to assume responsibility for any adverse effects and the appropriate corrective actions to be taken. This agreement should be in writing. The fumigator should attempt to verify before releasing the structure whether the suspected material or other adverse effect occurred and advise the owners or their agent of the results of any adverse effects found so that the agreed upon corrective action may be taken.

1. Natural bee goods - be cautious of the following:
 - a) Springe rollers
 - b) Gum rubber, wax, impregnated mats, mattes, and some car mats
 - c) Rubber tires and floor mats, car mats, floor mats and rubber
 - d) Note: The products listed above may be treated with this fumigant.
2. Eggs
3. Fish scales
4. Leathers, especially in leather goods
5. Leather goods, particularly white and other leather goods finished with surface processes
6. Woollens - Extreme caution should be used in the fumigation of Angora woolsens. Some adverse effects have been noted on woollen socks, sweaters, shawls, and yarn.
7. Viscose rayon, those rayon processed or manufactured by a process in which carbon disulfide is used
8. Vinyl
9. Paper
 - a) Silver polishing papers
 - b) Certain writing and other papers coated by the surface processes
 - c) Photographic prints and blueprints stored in quantity
 - d) Carbonless carbon paper
 - e) Blueprint papers
10. Cellulose
11. Photographic chemicals, darkroom chemicals, photographic films
12. Rug padding, flamm rubber and felt, but not the pressure sensitive materials used in wall and floor
13. Ozonite[®] indoor and outdoor carpeting
14. Cinder block
15. Mixed concrete or asphaltic plaster products
16. Mixtures of mortar and plaster used for finishing walls
17. Charcoal - The components in this product are readily adsorbed by charcoal. To minimize this contamination such materials should make sure the concentration of the fumigant in the fumigated areas is to the point of being harmless.

or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Cylinders: Cylinders remain the property of Van Waters & Rogers Inc. Any empty, deflated cylinders should be returned to Waters & Rogers Inc. by calling the local office for pick-up, or call (408) 435-8700. Do not ship cylinders without safety caps or protection.

SPILL AND LEAK PROCEDURES: Evacuate immediate area of spill or leak. Do not permit spill area by unprotected persons until the concentrations are determined to be less than 10 ppm for methyl bromide and less than 0.1 ppm for chloropicrin. Applying water to spills of this fumigant complicates detection of spilled material, increases the product's evaporation time, and spreads contamination. If leak occurs while cylinder is on tractor, i.e., rupture of hose or fitting, in tractor and motor. Use NIOSH/MSHA approved self-contained SCBA or combination SCBA respirator for entry into affected area to correct problem. Move leaking cylinders outdoors or to an isolated location, observing strict safety precautions. Work if possible. Allow spill to evaporate. Increasing the air flow and/or temperature in the area speeds up the evaporation process. Alternatively, a leaking cylinder may be removed to a safe area and the contents discharged under a polyethylene sheeting of 4 mil or greater thickness on a concrete surface in accordance with instructions under SOIL FUMIGATION DIRECTIONS. Contaminated water, and other clean-up debris is a toxic hazardous waste. Report spill to the National Response Center (800/424-8802) if the reportable quantity of 1000 pounds is exceeded.

Conditions of Sale and Warranty

The Directions for Use of this product reflect the opinion of experts based on field use and tests. The directions are to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherent in the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application all of which are beyond the control of Van Waters & Rogers Inc. All such risks shall be assumed by the Buyer.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THIS MATERIAL OR PRODUCT OTHER THAN INDICATED ON THE LABEL. BUYER ASSUMES ALL RISK OF USE AND DAMAGE TO PROPERTY. THIS MATERIAL WHEN SUCH USE OR HANDLING IS CONTRARY TO LABEL INSTRUCTIONS.

Residues and Tolerances

Many pesticidal chemicals are poisonous and may leave a toxic residue on the plants to which they are applied. The Environmental Protection Agency has established maximum amounts of such pesticidal chemicals that may remain on natural products at harvest, and it is the user's responsibility to see that there is no residue on such crops in excess of these amounts. The DIRECTIONS FOR USE are based on the best available information, and if followed will result in no excessive residues at harvest. However, Van Waters & Rogers Inc. assumes no responsibility as to any loss due to excessive residues.

Measuring Less Than Cylinder Quantities

This fumigant may be measured by one of two means: by scaling the cylinder during application, or by measuring volumetrically. Scaling of the cylinder can be done either using a hanging or platform weighing device. The user must be able to weigh in the appropriate units and be properly calibrated. When cylinders are scaled, a suitable hanger must be used. A hanger can be made by removing the top of the cylinder protective cap and attaching a U-shaped piece of 3/8 to 1/2 inch steel rod to the threaded base. Screw the cylinder securely to the hanger. Volumetric measuring devices are most useful for measuring smaller quantities as they only measure up to 10 pounds per filling.

Application Methods

This product may be applied in one of three methods:

See the label for a complete description of each method. For a full and detailed description of each method, contact your local Van Waters & Rogers Inc. representative for additional information.

1. By spraying this fumigant as a liquid into the space or airstream of a fan or blower.
2. By using a vaporizing pan of plastic, painted galvanized steel, or other material to which the material is applied using suitable tubing. Care should be taken when using this method to fasten the tubing securely and to assure the liquid methyl bromide will not splash out of or overflow the vaporizing pan.
3. By using a heat exchanger to volatilize the liquid methyl bromide into the vapor phase. This is also called the "hot gas method". It is recommended that the largest size tubing, pipe, or hose practical be used for the heat exchanger into the structure or area to be fumigated. If a thermometer is placed in the exit line, the temperature of the volatilized fumigant should not be less than 130°F.

Of these three methods, the "hot gas method" is generally preferred for the following reasons: First, the vapor form of methyl bromide is less likely to cause burns. Secondly, the need for specialized gear, such as volatized, is minimized. Third, when liquid methyl bromide is introduced into the fumigation area, volatilization of the liquid heat from the surroundings. This has two detrimental effects: fumigant movement, and hence equilibrium, is slowed, decreasing the effectiveness of the treatment. The "hot gas method" overcomes these problems because the volatilization takes place before the fumigant is injected.

pletely enveloped with an impervious tarpaulin. Seal securely all seams between tarps and seal the lower edges of the tarp to the ground with moist soil or with sand or water shales. 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 wedged tight, locked and sealed. Large exterior doors may require additional efforts to seal properly. Broken panes should be replaced. Check for cracks around the eaves, in the floor and roof, and seal them.

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

Outside Release—Furnished Structures, Including Dwellings

Do not fumigate if temperature inside is below 50°F.

- Use a heat exchanger to vaporize the fumigant. Maintain the temperature of the vaporized fumigant at 130°F or higher.
 - For an average size structure, the entire amount of fumigant may be released in one place. For a larger or more complex structure, release fumigant at two or more locations chosen to aid in the even distribution of the gas.
 - Use a shooting hose and bucket or tub made of chemically resistant material. Direct the shooting hose in to the bucket or tub and attach firmly so it will not come loose.
 - Direct the end of a fan toward the bucket or tub to circulate the vaporized fumigant. In addition to the shooting fan, use at least one fan for each 10,000 cubic feet of space. The fans should be directed up and positioned for maximum circulation.
 - Lock and seal the exit.
- e. Open the valves to release the fumigant. Respiratory protection equipment must be available in the event of a major leak or equipment failure.

Inside Release.

It is best to inform power, fire and health officials of the fumigation prior to beginning and when aeration is complete.

Operators should not be in the building longer than 30 minutes while releasing the fumigant. If it is not possible for one crew to do it within the time period, additional experienced crews should be used. Two people should work together while the gas is being released and when clearing the structure.

- Place Cylinders.** Cylinders should be placed by a team of two persons, using a clip board to map the location of each cylinder in the building.

The applicator should be able to open the cylinder on the top floor and continue walking away from the released fumigant in the direction of the exit. An exception to this is when there are basements. These should be treated before the ground floor.

Methyl bromide is heavier than air. This makes it advisable to overdose the top floors slightly.

Cylinders should be paced within the area to be fumigated so as to do the best job of diffusing into all areas. This is particularly important when fans are not used. Because methyl bromide is heavier than air, it is sometimes advisable to attach standpipes or curved pipes directed slightly upwards to the cylinder valves as "shooting tubes" in order to reduce stratification at lower levels. If standpipes are used, they should be equipped with T1 fitting to direct the gas laterally and prevent direct contact with the ceiling.

Note: Quarter-inch polyethylene tubing can be modified to substitute for the "shooting tubes" mentioned above. First, melt and compress one end of the tube to seal it. Then drill one or more 1/32" to 1/16" holes at a right angle completely through the tubing one inch from the sealed end. Fasten this end securely to some suitable object in the structure.

To minimize exposure to the applicator during release, the California Department of Food and Agriculture would use the release point at least 10 feet from the structure from the cylinder valve with the tubes pointed away from the cylinder and the pathway to the next cylinder.

- Make Practice Run.** Prior to the actual fumigation, release the cylinders, then reinsert them into a fumigator and make a "practice run." This should be started with a check of the cylinder protectors. Feed the crew through the respiratory protection and quickly open and close the valves on all cylinders to insure that they are in working order and thus avoid delay during the actual release.

- Release Fumigant.** Fumigators should always be run at a slight flow, rather than the time they spent the first cylinder until the time they leave the structure. A team member of the team should record the release of the fumigant from each cylinder in that time as noted. When fumigant is released, it is advisable to have additional people with respiratory protection ready to be dispatched to assist fumigators if a contact between personnel and fumigant is possible. The use of "twelve valves" to control release of fumigant from the cylinder section has been suggested.

- Lock and seal the exit.

3. Aeration

Do not allow fumigant concentration to rise above 5 ppm in any structure with this amount fumigant, 5 ppm for methyl bromide and 0.1 ppm diazophosphine.

Small Structures: At the end of the exposure period, remove the cylinders and open all doors and windows as appropriate. Unseal tarpaulin from the front and drop sides to the ground. Use fans to stir and mix the fumigant. This is important. Allow at least four hours for aeration. Then check for fumigant concentration with a detector device before allowing unprotected persons to enter the structure.

Large Structures: At the end of the exposure period, aeration generally begins by opening previously sealed doors and windows on the ground floor. Ventilation may be further enhanced if the structure should be opened at the time. After proper aeration, a team of at least two trained people with appropriate respiratory protection should begin opening windows starting at the lower floors and working upward. Fans should be on to assist aeration. Allow at least four hours for aeration. Then check for fumigant concentration with a detector device before allowing unprotected persons to enter the structure.

B. Chamber Fumigation—Atmospheric

Fumigation chambers have been constructed for water control, fumigation and drying. As a result, there will be a need for fumigant detectors and protectors in these structures. The water control chambers are used to dry grain and other commodities. Some fumigation chambers have been constructed for drying of various commodities. Cross sections have been developed by using a few water control chambers and the following joints inside the chamber of the fumigation system. The water control chambers are used to protect the chamber with an inert gas and determine the weight the commodity to be dried. The water control chamber is used to dry the commodity with a water control chamber that is applied to determine the weight of the commodity to be dried. The water control chamber is used during the fumigation period using a water control chamber. All of these chambers are used to dry the commodity.

It is recommended that the fumigant concentration be kept below 5 ppm in any structure with this amount fumigant, 5 ppm for methyl bromide and 0.1 ppm diazophosphine. The fumigant concentration should be checked at the end of the exposure period and at the end of the aeration period.

- Load the chamber with the commodity to be dried. The commodity should be dried in a chamber with a water control chamber.
- Determine the fumigant concentration in the chamber. The fumigant concentration should be checked at the end of the exposure period and at the end of the aeration period.
- Place and seal the chamber. The chamber should be sealed with a water control chamber. The fumigant concentration should be checked at the end of the exposure period and at the end of the aeration period.
- Introduce the fumigant to the chamber by releasing it from the atmosphere. The fumigant should be released through a water control chamber. The fumigant concentration should be checked at the end of the exposure period and at the end of the aeration period.
- After the fumigation is complete, the fumigant should be removed from the chamber. The fumigant concentration should be checked at the end of the exposure period and at the end of the aeration period.

