

3377-18 40-32 CENTER FRONT PANEL

# 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.

ACCEPTED  
3377-18  
20 SEP 1988  
UNDER THE FEDERAL INSECTICIDE  
FUNGICIDE AND ROENTGENIC ACT  
FOR ECONOMIC TOXIC REGISTERED  
UNDER NO. .... SUBJECT  
TO ATTACHED COMMENTS.

# M-B-R 98

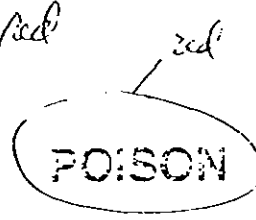
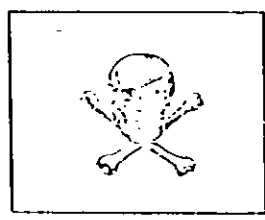
## FUMIGANT

FOR USE AS A PRE-PLANT SOIL TREATMENT  
AND A STRUCTURAL FUMIGANT

ACTIVE INGREDIENT:  
METHYL BROMIDE.....98%  
INERT INGREDIENT:  
CHLOROPICRIN.....2%

KEEP OUT OF REACH OF CHILDREN

DANGER  
PELIGRO



IN ALL CASES OF OVER EXPOSURE, GET MEDICAL ATTENTION IMMEDIATELY. TAKE PERSON TO A DOCTOR OR EMERGENCY TREATMENT FACILITY.

IF INHALED — Get exposed person to fresh air. Keep warm. Make sure person can breathe freely. If breathing has stopped, apply artificial respiration. 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.

ETHYL CORPORATION  
451 Florida Street  
Baton Rouge, LA 70801



In case of an emergency endangering life or property involving this product, call collect (504) 344-7147

EPA Reg. No. 3377- 18  
EPA Est. No. 3377-AR-1

NET CONTENTS..... LBS.

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

**EXTREMELY HAZARDOUS LIQUID AND VAPOR UNDER PRESSURE. DO NOT BREATHE VAPOR. INHALATION MAY BE FATAL OR CAUSE SERIOUS ACUTE ILLNESS OR DELAYED LUNG, NERVE OR BRAIN INJURY. LIQUID OR VAPOR CAN CAUSE SERIOUS SKIN OR EYE INJURY WHICH MAY HAVE A DELAYED ONSET. DO NOT GET LIQUID ON SKIN, IN EYES OR ON CLOTHING.**

This product contains chloropicrin as a warning odorant. Chloropicrin may be irritating to the upper respiratory tract, and even at low levels can cause painful irritation to the eyes, producing tearing. If these symptoms occur, leave the fumigation area immediately.

**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 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.

**RESPIRATORY PROTECTION**

If the concentration of methyl bromide in the working area, as measured by a suitable detector, does not exceed 5 ppm. (20 mg / m<sup>3</sup>), no respiratory protection is required.

This detection method requires a small hand held pump and methyl bromide detector tubes. The air sample is drawn through two small chemical reagent tubes in which the methyl bromide is decomposed by an oxidizing agent to liberate bromine. The bromine concentration is then indicated by color formed in reaction with O-tolidine. The detector tubes are capable of measuring methyl bromide concentrations of 2.5-500 ppm. Methyl bromide detector tubes and pumps listed below are available from safety supply distributors.

1. Sensidyne Gastec pump, part number F-7010657, detector tube #136.
2. Draeger pump, part number CH 304, detector tube #67-28211.
3. Matheson-Kitagawa pump, part number 8014K, detector tube #157Sb.

If the 5 ppm. concentration is exceeded at any time, all persons in the fumigation area must wear a [NIOSH MSHA approved self-contained breathing apparatus (SCBA) or combination air-supplied SCBA respirator].

**PROTECTIVE CLOTHING**

Wear loose cotton long sleeve shirts and pants, shoes and socks that are cleaned after each wearing. Do not wear jewelry, gloves or boots when handling. Methyl bromide is heavier than air and may be trapped inside clothing and cause skin injury. If full-face respiratory protection is not required, wear goggles or full face shield for eye protection when handling liquid. After application, immediately remove clothing, shoes and socks. Do not reuse contaminated clothing or shoes until cleaned. Drenched clothing cannot be adequately decontaminated.

**PLACARDING OF FUMIGATED AREAS**

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 crossbones symbol.
2. The statement, "Area under fumigation, DO NOT ENTER NO ENTRE".
3. The date of fumigation.
4. Name of fumigant used.
5. Name, address, and telephone number of the applicator.

Only a certified applicator or someone under his/her supervision may remove placards, and only when the concentration of methyl bromide in the treated site is below 5 ppm.

Return empty containers for reuse.

**BEST AVAILABLE COPY**

### STORAGE AND DISPOSAL

#### STORAGE AND HANDLING

Store in dry, cool, well-ventilated area under lock and key. Post as a pesticide storage area

Do not contaminate water, food, or feed by storage. Store cylinders upright, secured to a rack or wall to prevent tipping. Cylinders should not be subjected to rough handling or mechanical shock such as dropping, bumping, dragging, or sliding. Do not use rope slings, hooks, tongs or similar devices to unload cylinders. Transport cylinders using hand truck, fork truck or other device to which the cylinder can be firmly secured.

Do not remove valve protection bonnet and safety cap until immediately before use. Replace safety cap and valve protection bonnet when cylinder is not in use.

When cylinder is empty, close valve, screw safety cap onto valve outlet, and replace protection bonnet before returning to supplier. 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 cylinders.

#### DISPOSAL

Pesticide wastes are toxic. Improper disposal of excess pesticide is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representatives at the nearest EPA Regional Office for guidance.

#### SPILL OR LEAK PROCEDURE

Evacuate immediate area of spill or leak. Use SCBA or combination air-supplied SCBA respirator for entry into affected area to correct problem. Move leaking or damaged cylinders or containers outdoors or to an isolated location, observing strict safety precautions. Work upwind if possible. Allow spill to evaporate. Do not permit entry into spill area by unprotected persons until concentration of methyl bromide is determined 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 (800-424-6802) if the reportable quantity is exceeded.

### ENVIRONMENTAL HAZARD

The successful use of M-B-R 98 depends upon its containment during the fumigation exposure period. Monitor the area immediately surrounding the fumigation site with a halide detector during exposure and aeration periods to establish that dangerous levels of M-B-R 98 are not present.

The high volatility of M-B-R 98 permits it to be vented from spaces being fumigated and to dissipate rapidly with no hazard to surrounding areas with correct monitoring.

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.

### CHEMICAL HAZARD

M-B-R 98 is 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 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
- 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 woolens, and some adverse effect has been noted on the fumigation of woolen suits, coats, blankets, handknit woolen socks, sweaters, shawls, and woolen yarn
- 6 Viscose Rayons: Those rayons processed or manufactured by a process in which carbon bisulphide is used
- 7 Paper (a) Silver-polishing papers (b) certain writing papers cured by sulphide processes
- 8 Photographic chemicals as used in photo processing darkrooms, (does not include camera film)
- 9 Rug padding
- 10 Cinder blocks
- 11 Mixed concrete, which occasionally picks up odors
- 12 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

- 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

Return empty containers for reuse.

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LEFT LEFT SIDE TRUTH

3371-18

**METHYL BROMIDE  
LIQUID  
UN 1062**



**POISON**

**6**

**WARRANTY**

Seller makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Buyer assumes all risk of use and handling of this material when such use and/or handling is contrary to label instructions.

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LEFT BACK PANEL

### DIRECTIONS FOR USE

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

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, including the attached product manual.

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.

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 or commodities), two persons trained in the use of this product must be present at all times 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).

fumigated

Keep animals, children and unauthorized people away from area under treatment until area is certified free of M-B-R 98.

### CYLINDER HANDLING

Use copper or polyethylene tubing to connect cylinder to fumigation chamber, etc. Check all connections with halide leak detector during fumigation to make certain no leaks appear. If leaks occur, shut off main cylinder valve and tighten or replace all loose fittings. When empty, replace valve cap and dome, check for leaks with a suitable detector and return empty cylinder to your vendor. Do not re-use container.

**NOT REGISTERED  
(FOR USE IN CALIFORNIA)**

### STRUCTURAL FUMIGATION

M-B-R 98 is for use only by pest control operators as a structural fumigant. M-B-R 98 Fumigant is widely used for household fumigation in the control of the drywood termite. The normal dosage for control of drywood termites is 2 1/2 pounds per 1000 cubic feet at 60° F. or above for 24 hours. It should be remembered however, that although M-B-R 98 Fumigant will destroy the insects in a given structure, it will not kill the subterranean termite in its tunnels and underground nests. Comply with all local ordinances and State regulations pertaining to fumigation. Post warning signs at all entrances before fumigation. Before fumigation of structures, remove all materials made of rubber, synthetic rubber, horsehide, furs, and any articles containing sulfur compounds. Remove foods such as vegetable oils, butter, and iodized table salt as they may develop an unpleasant taste or odor. All open flames and electric heaters should be extinguished to avoid corrosion of metallic parts. The structure should be entirely enclosed in a plastic gas-proof tarpaulin. Windows and doors should be left open to improve circulation within the cover. After fumigation, covers are drawn back from doors to permit aeration and later removal. If necessary to enter fumigation area before aeration, wear an approved, full-face gas mask. Check completion of aeration with suitable gas detector.

After fumigation, treated areas must be aerated until the level of methyl bromide is below 5 ppm. Do not allow entry into the treated area by any person before this time unless protective clothing and a respiratory protection device (SCBA or combination air-supplied SCBA) is worn.

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

Do not fumigate sites which may be used for the storage or transport of raw agricultural commodities

### SOIL FUMIGATION

M-B-R 98 Fumigant is effective for the control of root-knot nematodes, cyst nematodes, wireworms and weeds. It is also effective for treatment of bulk soil in greenhouses, hotbeds, and cold frames. Treated soil should be used for non-food plants only, except for the growing of ornamentals or the propagation of transplants of asparagus, broccoli, cauliflower, eggplants, lettuce, peppers, muskmelons, onions (dry bulb), peppers, pineapples, tomatoes and strawberries. The dosage is 1 to 2 pounds per 100 square feet. Expose to fumigation for at least 48 hours at 60° F. and above for 3 to 4 days under 60° F. Aerate until odor is gone. Allow 3 to 4 days before seeding and 2 to 3 weeks before setting transplants. Field dosage for strawberry or tomato soil is 240 pounds per acre. Expose to fumigation for at least 48 hours at 60° F. Aerate two weeks before setting transplants. For fruit-tree planting soil in nurseries use 412 pounds per acre. Expose to fumigation for 48 hours at 60° F. Allow 3 to 4 days exposure time for lower temperatures. Aerate 7 to 10 days before planting. All fumigation should be done under a gas-tight tarpaulin.

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## DIRECTIONS for Use (continued)

### APPLICATION AND PLANTING

**WHEN TO TREAT:** Treatments can be made in the spring, summer, or fall whenever soil conditions are suitable. In northern states, late summer or early fall treatments are best for land to be planted to early spring crops.

**SOIL PREPARATION:** To facilitate fumigant penetration, plant refuse should be worked into the soil and time allowed to decompose before treating. Soil must be in good workable seed bed condition, warm, preferably 50 to 80°F at a depth of one inch, with moisture adequate for good seed germination. Do not treat if the soil temperature is below 45°F at the five inch level. Pretreatment tillage to a depth of 12 to 18 inches often improves results, especially in heavy or muck soils.

**APPLICATION:** A special inexpensive chisel-type applicator is used to inject M-B-R-78 fumigant about 5.8 inches into the soil. Due to the volatility of this fumigant, treated areas must be covered with polyethylene film or other suitable tarpaulin immediately after application. Lay film manually or with a mechanical tarp layer. M-B-R-78 fumigant is toxic to plants. Do not apply to soil containing roots of desirable plants. The edges of the tarpaulin cover should be at least 18 inches away from the foliage drip-line of desirable plants.

**EXPOSURE PERIOD AFTER APPLICATION:** For soil temperatures above 60°F, leave the treated soil covered for at least 48 hours to insure maximum fumigant diffusion. For soil temperatures below 60°F, extend the exposure period to 3 or 4 days for best results. Good results are obtained from fall application where the covers are left on all winter.

Consult the following calibration chart to apply 430 pounds of M-B-R-78 fumigant per acre with chisels on 12-inch centers and 45 pounds operating pressure at the manifold.<sup>1</sup>

| Tractor Speed              | 2 mph | 2.5 mph | 3 mph | 3.5 mph |
|----------------------------|-------|---------|-------|---------|
| Orifice Diameter In Inches | .037  | .039    | .043  | .046    |

**ADDITIONAL USES** M-B-R-78 fumigant may also be used for the control of insect pests infesting lumber and bagged or bulk grains in railroad boxcars or by treatment under a gasproof cover (tarpaulin). M-B-R-78 may also be used for preplanting application to control citrus nematode, burrowing nematode, root-knot nematode, Armillaria root rot fungus, Phytophthora root rot and crown rot fungus in sandy and fine textured clay soil tree replant sites in peach and almond orchards and citrus groves.

**USE PRECAUTIONS:** M-B-R-78 has given excellent results with a wide variety of soils and plants. However, for reasons not clearly understood, plant growth has occasionally been unsatisfactory following treatment. Difficulty has been experienced with carnations, conifers, holly nurseries roses, shrubs, and certain other ornamental plants and shrubs. Every grower should experiment on a small scale for at least a full season before extensive use.

For best results, observe the following precautions:

- Do not treat soil when very cold, very wet or very dry.
- M-B-R-78 is toxic to all plants. Do not fumigate too close to desirable vegetation. Keep the edge of the cover at least a foot away from the roots of desirable plants and water the root zone thoroughly in area not covered by the tarp or polyethylene cover. If possible, pre-soak root zone around desirable plants immediately adjacent to cover to help contain the gas under the cover.
- Be sure treated soil or material is free from M-B-R-78 before seeding or using. Working it will help aeration.
- Prevent contamination of fumigated areas. If necessary to avoid flooding, trench around them or build wooden or earthen dams. Clean your shoes carefully when walking from untreated to treated soil. Do not use tools, transplants or crop remains that may carry pests from unfumigated areas.
- Fumigation with M-B-R-78 sometimes slows down the rate of nitrification (the conversion to nitrates from ammonia by bacterial action). Certain ammonia-sensitive plants, such as tomatoes, may suffer growth inhibition or stand reduction when planted in fumigated soils containing high amounts of ammonia nitrogen. To lessen this hazard at least 1/2 and preferably 2/3 of the nitrogen fertilizer is added immediately before or soon after fumigation should be in the form of nitrate nitrogen. This hazard may also be reduced by delaying planting until several months after fumigation. If a nitrate form of nitrogen such as sodium or calcium nitrate is not readily available, ammonium nitrate used sparingly will supply the nitrogen needed without risk. Phosphorus, potassium and other plant nutrients should be used according to soil needs.
- Fumigation of soils in organic matter, such as muck, compost and heavily manured soil, may occasionally cause conditions which result in poor plant growth. These soils should be fumigated at least two months before planting.
- To avoid the possibility of exceeding bromide tolerances, food crops other than strawberries and tomatoes should not be grown in maturity in soil treated with M-B-R-78 soil fumigant. Transplant such crops to untreated soil or to soil treated according to registered pesticide uses.
- Under certain conditions M-B-R-78 soil fumigant may be corrosive to certain metals. DO NOT use containers or application equipment made of aluminum, magnesium or their alloys.

**HANDLING PRECAUTIONS:** M-B-R-78 fumigant is a highly hazardous material and should be handled observing the following precautions:

- Before using read all label directions and follow them carefully.
- Do not breathe vapor.
- Do not soil. If liquid M-B-R-78 spills on shoes or clothing, remove them at once and do not wear them again until aired outdoors for several days. Do not wear gloves when applying M-B-R-78.
- Keep animals and children away from plots while under treatment for at least 30 minutes after the cover is removed. The warning agent in M-B-R-78 by irritating the eyes, will warn of leaks or spillage in handling and storage. Chloropicrin must never be depended upon as a warning agent when a gas mask is worn. It disappears in a few hours, however, and will not keep children or animals from creeping under the cover.
- When fumigating inside buildings, keep doors and windows open at all times until after aeration is completed. Good ventilation is essential both for safety and for satisfactory aeration, particularly when fumigating compost and manure.
- Store M-B-R-78 in a cool place away from dwellings.
- Application of M-B-R-78 from outside the treated area often eliminates the need of a gas mask during application, however, one should always be at hand for emergency use.
- Always have a helper to assist with application and any emergency.

DOSAGE TABLE FOR M-B-R-78

| Pest Control Desired   | TYPE OF SOIL OR MATERIAL   | Dosage                                | Minimum Exposure Time(1) | Aeration Time Before Planting(2) |
|--|--|---------------------------------------|--------------------------|----------------------------------|
| Nematodes, insects and weed seeds                            | Turf Reservoirs: Lawns, parks, golf greens, athletic fields and other ornamental and recreational turf areas.  | 1 1/2 lb per 150 sq ft or 430 lb/acre | 24 hrs                   | 48 hrs                           |
|  | Nonleed and Hoarled Crop Areas: Seed and plant beds for tobacco, flowers, shade and forest trees, ornamental shrubs and vines, and other similar plants. Also vegetables for production of transplants only. |                                       |                          |                                  |
|  | Permanent planting sites for tobacco, flowers, shade and forest trees, ornamental shrubs and vines and other similar plants.   |                                       |                          |                                  |
| Damping-off organisms such as Pythium, Rhizoctonia, Fusarium | Well tilled compost, manure and top soil   | 1/2 lb per cu yd                      | 24 hrs                   | 72 hrs                           |
|  | Mulching straw or hay  | 1 1/2 lb per 6 bales                  | 48 hrs                   | 24 hrs                           |
|  | Turf Reservoirs: Same sites as listed above. Nonleed and Hoarled Crop Areas: Same plants as listed above.  | 3 lb per 150 sq ft                    | 24 hrs                   | 72 hrs or longer                 |
|  | Well rotted compost and manure   | 1 lb per cu yd                        | 24 hrs                   | 72 hrs or longer                 |

(1) Exposure and aeration times should be doubled if soil temperature is between 50°F and 60°F. M-B-R-78 should not be used if temperature is below 50°F.

(2) Soil in which plants are to be set should be aerated for a week to ten days.

BEST AVAILABLE COPY

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# Right Back Panel

3377-18

## Directions for Use (continued)

### **PRIOR TO FUMIGATION**

Comply with all local regulations and ordinances. Obtain an application permit from Agricultural Regulatory Agencies as required.

Never fumigate alone. It is imperative always to have an assistant and proper protective equipment in case of accidents.

Drivers of application equipment must advise other workers of all precautions and procedures. In addition, drivers must instruct their helpers in the mechanical operation of the tractor and how to safely work with the tractor and driver while fumigating.

Handle this fumigant in the open, with the operator upwind from the container where there is good ventilation.

Check fumigant pressure system for leaks before beginning operation.

Two trained persons must be present during introduction of the fumigant.

When fumigating soil from a tractor, 5 gallons of water must be carried on the tractor and placed where it is readily accessible. In addition to water available on the tractor, at least 5 gallons additional water must be available from the service truck. This water must be potable and in containers marked "Decontamination water not to be used for drinking."

All trash should be cleaned from the field before starting fumigation.

### **DURING FUMIGATION**

This fumigant should not be applied when there is an atmospheric inversion. Since uncomfortable concentrations of chloropicrin may drift to nearby areas, immediately cover treated area with plastic tarpaulin for a minimum of 48 hours.

Do not lift injection shanks to turn at the end of a pass until fumigant has drained from system following closure of shutoff valve.

If trash is inadvertently pulled by the shanks to the ends of the field when fumigating, it must be covered by lifting the shanks, then covering the trash with polyethylene film before making the turn for the next pass.

When changing the cylinders, be certain they are turned off and fumigant system is not under pressure.

### **AFTER FUMIGATION**

Post all treated areas with warning signs.

Keep all animals, children and unauthorized people away from area under fumigation for 48 hours after fumigation and during removal of tarpaulin.

Two trained persons must be present during removal of the tarpaulin.

### **FOR SPILL OR LEAK DURING FUMIGATION**

In case of a rupture of hose or fitting while applying fumigant, immediately stop tractor and motor. Evacuate immediate area of spill or leak. Use SCBA or combination air supplied SCBA respirator for entry into affected area to correct problem. Approach from upwind to make necessary repairs. Do not reenter area without respiratory protection until a spill has evaporated or a leak has been fixed.