

PM 21  
10182-130  
pg. 137  
AUG 14 1989

Mr. Andrew A. Davidson  
ICI Americas, Inc.  
Agricultural Products  
Concord Pike & New Murphy Road  
Wilmington, DE 19897

Dear Mr. Davidson:

Subject: Amended Labeling  
Vapam Soil Fumigant Solution  
EPA Registration No. 10182-150  
Your Submission Dated April 24, 1989

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable subject to the following comment:

- In the directions for use for control of early maturity diseases in Oregon, the reference to potatoes has been omitted. Indicate that this is a disease of potatoes or move this section (including the "Note") to appear in the section of the label referring to potatoes.

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

Sincerely yours,

Susan Lewis  
Acting Product Manager (21)  
Fungicide-Herbicide Branch  
Registration Division (475050)

Enclosure

55214:I:Maranion:R-3:KENCO:8/9/89:9/21/89:rw:SW:VO:EK:KA

CONCURRENCES							
SYMBOL							
SURNAME							
DATE							

Soil Fumigant Solution For  
All Crops

AUG 14 1989

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act as  
amended, for the pesticides  
registered under EPA Reg. No.

## ACTIVE INGREDIENT:

Sodium methyldithiocarbamate (anhydrous) . . . . . 32.7%

INERT INGREDIENTS: . . . . . 67.3%

100.0%

\* Contains 3.18 lbs. active ingredient per gallon

KEEP OUT OF REACH OF CHILDREN

W A R N I N G

## STATEMENT OF PRACTICAL TREATMENT

FIRST AID

Immediately start the procedures given below and CONTACT A POISON CENTER, A PHYSICIAN OR THE NEAREST HOSPITAL. Describe the type and extent of exposure, the victim's symptoms, and follow the advice given.

For skin contact, flush affected areas with large amounts of running water for 15 minutes and get medical attention. Remove and clean contaminated clothing and shoes.

For eye contact, immediately flush eyes with large amounts of running water for 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids with water. Get medical attention immediately.

If inhaled, remove to fresh air. If breathing is difficult, oxygen may be given with a physician's advice. If not breathing, clear victim's airway, start mouth-to-mouth artificial respiration, and get medical attention.

If swallowed, immediately give several glasses of water but do not induce vomiting. If vomiting occurs, give fluids again. Have a physician determine if condition of patient will permit induction of vomiting or evacuation of stomach. Do not give anything by mouth to an unconscious or convulsing person.

FOR 24-HOUR EMERGENCY MEDICAL ASSISTANCE, CALL (800)-F-A-S-T-M-E-D (327-8633).

FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident call  
CHEMTREC 1-800-424-9300.

See Side Panel for Additional Precautionary Statements

EPA Reg. No. 10182-150

\_\_\_ GAL. NET \_\_\_ L

EPA Est. No. 10182-

This product is sold only for uses stated on its label. No express or implied license is granted to use or sell this product under any patent in any country except as specified: Country: U.S.A.

(Roundel) Made in U.S.A. By  
ICI Agricultural Products  
ICI Americas Inc.  
Wilmington, DE 19897

**PRECAUTIONARY STATEMENTS****Hazards to Humans and Domestic Animals****W A R N I N G**

**HARMFUL IF INHALED OR SWALLOWED. IRRITATING TO EYES, NOSE, THROAT AND SKIN.** Avoid breathing vapor or spray mist. Do not get in eyes, on skin, or clothing. Causes skin irritation. Prolonged contact may cause severe skin irritation. May be fatal if absorbed through skin. In case of contact, immediately remove contaminated clothing. Wash and dry clothing before reuse. Where adequate ventilation is not available, use NIOSH-approved full-face pesticide canister respirators to reduce exposure. Where exposure potential under the use conditions necessitates a higher level of protection, use a full-face positive-pressure air-supplied respirator.

**Environmental Hazards**

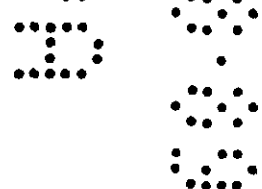
This product is toxic to fish. Do not apply directly to water. Do not apply where runoff is likely to occur. Do not contaminate water when disposing of equipment washwaters. Apply this product only as specified on the label.

**PRODUCT INFORMATION**

VAPAM is a water soluble liquid. When applied to properly prepared soil, the liquid is converted into a gaseous fumigant. After sufficient interval of time, the gas dissipates leaving the soil ready for planting. VAPAM is recommended for the control of the following soilborne pests that attack ornamental, food and fiber crops: Weeds and germinating weed seeds (annual bluegrass, bermudagrass, chickweed, dandelion, ragweed, henbit, lambsquarter, Amaranthus sp. (pigweed, careless weed) watergrass, johnsongrass, nutsedge wild morningglory and purslane) nematodes, symphylans, (garden centipede); and soilborne diseases (Rhizoctonia, Phythium, Phytophthora, Verticillium, Sclerotinia, oak root fungus and club root of crucifers).

**USE PRECAUTIONS**

Keep children and pets out of treated area until dry. Keep off desirable lawns and plants. Do not apply within 3 feet of the drip line of desirable plants, shrubs or trees. Do not use in confined areas without adequate ventilation or where fumes may enter nearby houses contaminating growing plants. Do not use in greenhouses when desirable plants are present. Keep container tightly closed when not in use. Do not store near feed or food.



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DIRECTIONS FOR USE

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

Before applying VAPAM always cultivate thoroughly area to be treated, breaking up clods and loosening soil deeply and thoroughly. A week before treatment, moisten soil after cultivation to the desired depth; sprinkle or flood irrigate. See, section "POTATOES: PACIFIC NORTHWEST AND NORTH CENTRAL STATES - FALL APPLICATION" where no-till stubble, or cover crops exist for specific application directions. Immediately before application, cultivate lightly if the soil has crusted. (1)

To prevent loss from evaporation, use only at times when air temperature is moderate and there is little wind movement. Soil temperature must be from 40-90°F in the treated zone. Treated zone is defined as the depth of treatment that VAPAM achieves at the time of application. For other conditions, see section, "Cultivation & Planting After Application". Do not apply to the soil surface, as in the sprinkler method, when air temperature is over 90°F or when low humidity or high winds would cause loss of VAPAM before it can be drenched into the soil with additional water. If fumes become unpleasant during treatment, apply more water to seal the fumes into the soil where they should be confined to achieve maximum fumigant benefit. (2)

Where rates ranges for VAPAM are given, use the higher rate if pests (insects, nematodes, etc.) are present in high numbers or if the area to be treated has a history of pest problems.

The activity of VAPAM is increased by the use of a tarp (plastic, paper or fabric) spread loosely over the treated area and secured to prevent removal by wind. Keep covered for a minimum period of 48 hours. Seven days after treatment, cultivate area to depth of 2 inches to aerate the soil. To avoid crop injury, do not seed earlier than 21 days after application when tarping method is used.

APPLICATION IN TANKMIX WITH LIQUID FERTILIZER: VAPAM may be injected in a mixture with liquid fertilizers. Since the composition of liquid fertilizers vary considerably, the physical compatibility of each fertilizer/VAPAM tankmix should be checked by using the following procedure: (3)

Mix a small quantity of VAPAM and liquid fertilizer in a glass container. VAPAM and fertilizer should be mixed in the same ratio as they will be applied to the field (i.e. if 40 gallons of VAPAM and 40 gallons of liquid fertilizer are to be applied per acre, then VAPAM and fertilizer should be mixed in the jar, in a 40:40 or 1:1 ratio). Agitate the liquids to attain a complete mixture. If a uniform mix cannot be made, the mixture should not be used. If the mixture remains uniform for 30 minutes, the combination may be used. Should the mixture separate after 30 minutes, but readily remix uniformly with agitation, the mixture can be used if adequate agitation is maintained in the tank.

DO NOT PLACE CAPS ON JAR, AS INCOMPATIBLE MIXES MAY EVOLVE HYDROGEN SULFIDE GAS.

USE PROMPTLY AFTER MIXING WITH WATER OR FERTILIZER. DO NOT ALLOW SOLUTION TO STAND. Flush all equipment with water after each day's use. Disassemble valves and clean carefully.

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USE PRECAUTIONS FOR IRRIGATION SYSTEMS

- A. Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll traveler solid set, or hand move; flood (basin); furrow; border; or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.
- B. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.
- C. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
- D. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
- E. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

USE PRECAUTIONS FOR FLOOD (BASIN), FURROW AND BORDER IRRIGATION

- 1. Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.
- 2. Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:
  - a. The system must contain a functional check valve, vacuum-relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
  - b. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
  - c. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
  - d. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
  - e. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
  - f. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

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USE PRECAUTIONS FOR SPRINKLER IRRIGATION

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Application of more than recommended quantities of irrigation water may result in decreased product performance by removing the chemical from the zone of effectiveness.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

USE PRECAUTIONS FOR DRIP (TRICKLE) IRRIGATION

④

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

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4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

#### CULTIVATION AND PLANTING AFTER APPLICATION

On well-drained soils of light to medium texture which are not excessively wet or cold following application, planting may take place 14 to 21 days after treatment. If soils are heavy or especially in organic matter or remain wet and/or cold (below 60°F) following application of VAPAM, an extended interval should be observed. Where dosages are greater than 100 gal. per acre, wait at least 60 days. On heavy, wet soils, light surface cultivation to break up crusting and promote drying of the soil should be done 5 to 7 days after application. This cultivation may be repeated as necessary. To avoid reinfesting treated soils, cultural practices should be such that untreated soils are not mixed with treated soils.

**SPECIAL INSTRUCTIONS:** When treating potting soil, or heavier field soils, including soils high in clay or organic matter, it is especially important that the soil be allowed to aerate and dry thoroughly after using VAPAM. During cold and/or wet weather, frequent shallow cultivations may aid the escape of VAPAM from the soil. If in doubt, transplant a seedling plant and examine for injury before planting crop.

#### USES, APPLICATION METHODS & RATES

##### FOR SHALLOW PESTS IN SEEDBEDS, PLANT BEDS, LAWNS AND OTHER LIMITED AREAS:

**SPRINKLING CAN METHOD:** Place 1 pt. VAPAM (1½ pt on very heavy soils or for deep-rooted weeds) in a sprinkling can, fill with water, and sprinkle uniformly over 50 sq. ft. of well-prepared soil. Sprinkle immediately with water until soil is sealed, or tarp for 48 hours.

**COMMERCIAL MIXER PROPORTIONER METHOD:** Add 1 qt. VAPAM to 3 qt. water in a bucket or other container and apply through the mixer proportioner to an area of 100 sq. ft. Sprinkle with water until soil is sealed, or tarp for 48 hours.

**SOIL INJECTION:** Space injectors 5 in. apart and inject VAPAM 4 in. into well-prepared soil. Follow immediately with a roller to smooth and compact the soil surface. Light watering or a tarp after rolling helps prevent gas escape. For seedbeds a dosage of 75 to 100 gal. per acre (1½ pt. to 2 pt. per 100 sq. ft.) is recommended.

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**ROTARY TILLER:** Spray or sprinkle diluted VAPAM immediately in front of tiller. Use 1 qt. VAPAM in 2½ gal. water per each 100 sq. ft. Follow immediately with a roller to smooth and compact the soil surface. Light watering or a tarp after rolling will help prevent gas escape.

**FIELD APPLICATION--WHERE ENTIRE AREA IS BEING TREATED:**

**SOIL INJECTION:** Using injectors spread 5 in. apart or using injector blades inject VAPAM 4 in. deep into well-prepared soil. Follow immediately with a roller to smooth and compact surface. Light watering or a tarp after rolling helps prevent gas escape. For field use, 50 to 100 gal. VAPAM per acre is recommended. (5)

**SPRINKLER SYSTEM:** Use only those sprinkler systems which give large water droplets to prevent excess loss. Use 75 to 100 gal. VAPAM per acre. For control of shallow pests (top 1 ft. or less of soil), run sprinklers 5 to 10 min. In next 20 to 20 min. inject into the sprinkler system all VAPAM needed for the area covered. On very light soils keep surface moist by sprinkling for 2 or 3 days. For control of pests deeper than 18 in. in the soil, divide VAPAM into 3 or more equal parts and apply at intervals during the sprinkling period.

**CHECK OR FLOOD IRRIGATION:** Meter VAPAM at a steady rate into water during irrigation. Use 50 to 100 gal. VAPAM per acre, depending upon the kind of pest and depth desired, in 3 to 18 inches of water per acre.

**FIELD APPLICATION TO BEDS OR ROWS:**

**SOIL INJECTION:** VAPAM, at the rate of 75 to 100 gallons per treated acre (1½ to 2 pints per 100 sq. ft.) may be injected into pre-formed plant beds following the directions given above under soil injection. If a wider treated band is desired, space 2 or more injectors (shanks, blades, fertilizer wheels, etc.) at intervals of 5 in. to cover the desired treating width. Roll immediately. (6)

If VAPAM is injected into established plant beds through plastic tarps to terminate growth of a previous crop, and to fumigate the bed in preparation for planting a subsequent crop, the terminated crop should not be used for any food or feed purpose after VAPAM has been applied. (7)

Drip Irrigation: VAPAM must be applied through a drip irrigation system to wet the soil thoroughly in the area being treated.

Meter 25 to-75 gallons VAPAM per treated acre into the drip system during the entire irrigation period. APPLICATION MUST BE CONTINUOUSLY SUPERVISED. THIS IS VERY IMPORTANT: WEED ELIMINATION WILL NOT BE SATISFACTORY IF TOO MUCH WATER IS APPLIED. An adequate concentration of VAPAM must be present at the time of weed seed germination in order to be effective. Further directions for use are as follows:

1. Ground must be in seed-bed condition, no clods larger than ½" in diameter.
2. Beds must be listed, shaped and ready for planting.
3. Soil moisture must be at 50% of field capacity in the top 2-3" at time of VAPAM application.



Tankmix with TILLAM® 6E herbicide (tomatoes only):

A tankmix of VAPAM soil fumigant plus TILLAM 6E herbicide may be used when desired. The mixture must be applied preplant to tomatoes if all directions and precautions pertaining to both VAPAM and TILLAM 6E are followed. Apply through a spray blade, by shank injection, low pressure boom sprayer or (Western Region only) through solid set sprinkler systems.



SOIL COVERING METHODS: (Bed-over methods). VAPAM may be sprayed or dripped onto the soil immediately ahead of bedshaping equipment. Cover the VAPAM with soil to a depth of 3 to 6 inches. The soil should be rolled and compacted immediately. The recommended rate of VAPAM is 50 to 100 gal. per treated acre, approximately equivalent to 1 to 2 pints per 100 sq. ft. of treated bed.

TREATMENT OF TREE REPLANT SITES: After removing dead or diseased tree and as much of the root system as possible, make a shallow basin over the planting site. Add VAPAM to the stream of water while filling the basin. Use 1 qt. VAPAM per 100 sq. ft. in sufficient water (depending on soil type) to penetrate at least 6 ft. For control of oak root fungus, use a basin at least 20 x 20 ft. square. Increase dosage to 2 qt. VAPAM per 100 sq. ft. in sufficient water to penetrate to the depth of root system. If water is tanked to the planting site, add VAPAM to the water and mix before filling basin.

TREATMENT OF POTTING SOIL:

A. SPRINKLE METHOD:

1. Spread soil in a smooth layer 4 inches high on concrete or on pre-treated soil.
2. Sprinkle VAPAM at rate of 1 pint in 5 gallons of water per 100 sq. ft. of surface area.
3. Layers can be treated one on top of another.
4. Sprinkle top layer with sufficient additional water to seal the surface, or cover with tarp (plastic, kraft paper, etc.).

B. CEMENT MIXER:

1. Add VAPAM to soil mix at rate of 1 fl. oz. VAPAM per 2 cu. ft. of soil, in cement or similar mixer. Mix thoroughly.
2. After soil is treated and piled, sprinkle water over entire surface to seal in gas or cover with tarp (plastic, kraft paper, etc.).

C. SHREDDER:

1. Dilute VAPAM in sufficient water to obtain even distribution. As soil is ejected from shredder, spray uniformly on soil stream at rate of 1 fl. oz. VAPAM per 2 cu. ft. of soil.
2. After all soil is treated and piled, apply light water seal to entire surface or cover with tarp.

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**POTATOES: PACIFIC NORTHWEST AND NORTH CENTRAL STATES - Fall Application**

To suppress nematodes and Verticillium dahliae (Early Maturity Disease) in potatoes, use 50 to 100 gallons of VAPAM per treated acre. Inject into the sprinkler system (Refer to USE PRECAUTIONS FOR IRRIGATION SYSTEMS, Part A) all of the VAPAM needed for the area covered and apply in a minimum of 1 acre inch of water. VAPAM may be applied where crop stubble or vegetation exists without prior tillage, provided there is adequate soil penetration of VAPAM.

**TOBACCO PLANT BEDS:** Fall applications are recommended wherever possible. Read and follow DIRECTIONS FOR USE carefully. Treatment in the South should generally be made before November 30.

- A. **TARP METHOD:** Prepare the bed 5 to 7 days before application to ensure best condition for weed seed germination and fumigant action of VAPAM. The bed should be free of clods, level and in good tilth. Apply 1 to 1½ gal. of VAPAM in a minimum of 40 gal. of water per 100 sq. yds. Apply uniformly over the entire bed. Cover the bed immediately with a plastic cover. Keep covered no less than one day, but no more than two days. The cover need not be tented, but should be secured to prevent wind from uncovering the treated area. Seven days after date of VAPAM application, loosen the treated soil to a depth of 2 in. Do not seed tobacco earlier than 21 days after VAPAM application.
- B. **DRENCH METHOD:** Apply 2½ gal. VAPAM in 150 to 200 gal. of water per 100 sq. yd. Application may be made with sprinklers, sprayers with nozzles or any suitable equipment. Follow directions given above for seedbed treatment.

**SYMPHYLAN CONTROL:** Soil should be in good seedbed condition to a depth of 8 to 20 inches. Maintain adequate moisture during spring season. Treat during July-August when symphyllans are in the upper soil surface. Apply 20 gal. VAPAM per treated acre (0.4 pints per 100 sq. ft.) using blade or chisel injectors spaced 5 inches apart. Inject below level of symphyllan concentration, usually 6 to 8 inches. Pack soil immediately after application.

**EARLY MATURITY DISEASES IN OREGON.** Apply 40 gals. VAPAM per acre using thin shank injector rig with shanks spaced 5 inches apart.

NOTE: VAPAM will only control nematodes which are in the treated zone at time of treatment. VAPAM has no soil residual and reinfestation of a field can occur from numerous sources such as deep nematode populations, potato seed pieces, equipment contamination and blowing soil.

**PEPPERMINT--Verticillium wilt control.** When infection is limited to small spots in a field, spread can be reduced by treating the soil with 100 gal. VAPAM per treated acre (2 pints per 100 sq. ft.) using injector blade or thin shank injector rig with injectors spaced 5 inches apart.

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## PREVENTION OF ROOT GRAFT TRANSMISSION OF DUTCH ELM AND OAK WILT DISEASE

Immediately after tree is diagnosed as having Dutch Elm or Oak Wilt disease, isolate the diseased tree from healthy trees with the VAPAM treatment. If a diseased tree is less than 20 feet from a healthy tree or has advanced wilt symptoms, it may be necessary to treat at two sites--one between the diseased and the first healthy-appearing tree and on between the first and second healthy-appearing trees. This measure is advisable because the causal fungus may have already passed from the diseased to the first healthy-appearing tree before VAPAM was applied.

Use VAPAM diluted one part to three parts water for Dutch Elm disease and diluted one part to ten parts of water for Oak Wilt disease. Drill holes approximately 3/4 to 1 inch in diameter, 15 inches deep to 6 to 9 inches apart. Fill each hole with diluted VAPAM to within 2 inches of the soil surface.

Make the line of treatment sufficiently long to kill all roots of the two adjacent trees that are likely to be root-grafted. Apply the chemical slowly and carefully to avoid overflowing the drilled holes, this will reduce grass kill. Tamp each hole closed with the heel. Allow at least two weeks after treatment before removing the diseased tree.

### STORAGE AND DISPOSAL

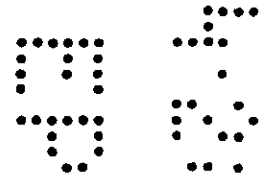
Prohibitions: Do not contaminate water food or feed by storage or disposal.

Storage: Do Not Store Below 0°F. Product crystallizes at lower temperatures. Warm or store at higher temperatures and mix to redissolve crystals and assure uniformity before use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

### NOTICE TO BUYER AND USER



Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal use conditions, or under conditions not reasonably foreseeable to Seller, and Buyer and User assume the risk of any such use. SELLER DISCLAIMS ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING ANY WARRANTY OF FITNESS OR MERCHANTABILITY. SELLER SHALL NOT BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT AND SELLER'S SOLE LIABILITY AND BUYER'S AND USER'S EXCLUSIVE REMEDY SHALL BE LIMITED TO THE REFUND OF THE PURCHASE PRICE.

NOT RECOMMENDED  
In Accordance with EPA Label 100-100  
Based on the following information:

# Vapam®

## Soil Fungicide Solution For All Crops

ACTIVE INGREDIENT	32.7%
Soluble methylthiochloranil (containing)	67.3%
Contains 3.16 lbs active ingredient per gallon	100%

Keep Out of Reach of Children  
**WARNING**  
Harmful if Swallowed



LOT NO. \_\_\_\_\_  
DATE OF MANUFACTURE \_\_\_\_\_

EPA Reg. No. 100-100  
EPA Reg. No. 100-100-C-2  
DANGER-AL-1  
Representative concentrations to first letter of first number.

Keep Out of Reach of Children

### WARNING

Statement of Practical Treatment

**IF SWALLOWED:** Immediately start the procedure given below and CONTACT A POISON CENTER OR PHYSICIAN ON THE NEAREST HOSPITAL. Do not use the type and brand of emesis the victim's symptoms, and follow the advice given for the victim's symptoms.

**IF SWALLOWED:** Wash affected areas with large amounts of running water for 15 minutes. Hold the victim's head during the flushing to ensure the flow of the water around the eye and the side with eye. Get medical attention immediately.

**IF SWALLOWED:** Do not induce vomiting. Do not give anything by mouth to a person who is unconscious or convulsing. Do not give anything by mouth to a person who is convulsing.

**IF SWALLOWED:** Do not induce vomiting. Do not give anything by mouth to a person who is unconscious or convulsing. Do not give anything by mouth to a person who is convulsing.

**FOR 24-HOUR EMERGENCY MEDICAL ASSISTANCE CALL:**  
1-800-4-A-S-1-1111  
FOR OTHER EMERGENCY ASSISTANCE CALL:  
1-800-4-A-S-1-1111

For other product information contact your local distributor or call 1-800-4-A-S-1-1111.

### PRECAUTIONARY STATEMENTS

Harmful to Humans and Domestic Animals

### WARNING

**HARMFUL IF SWALLOWED OR SWALLOWED:** Irritating to eyes, nose, throat and skin. Avoid breathing vapor or spray. Do not get on face or in clothing. Clean skin of face. Remove contaminated shoes. Avoid contact with children. Do not use in areas where children play. Do not use in areas where children play. Do not use in areas where children play.

**Environmental Hazards**  
This product is toxic to fish. Do not apply directly to water. Do not apply directly to water. Do not apply directly to water.

### PRODUCT INFORMATION

This product is a water-soluble soil fungicide. It is used to control soil-borne fungi that cause damping-off, root rot, and other diseases of plants. It is used to control soil-borne fungi that cause damping-off, root rot, and other diseases of plants.

### USE PRECAUTIONS

Do not use in areas where children play. Do not use in areas where children play. Do not use in areas where children play.

### DIRECTIONS FOR USE

Apply to soil in a 100-gallon solution. Apply to soil in a 100-gallon solution. Apply to soil in a 100-gallon solution.

Use a small quantity of VAPAM and liquid fertilizer in a 100-gallon solution. Use a small quantity of VAPAM and liquid fertilizer in a 100-gallon solution. Use a small quantity of VAPAM and liquid fertilizer in a 100-gallon solution.

**USE PRECAUTIONS FOR IRRIGATION SYSTEMS**  
Apply this product only through irrigation systems. Apply this product only through irrigation systems. Apply this product only through irrigation systems.

**USE PRECAUTIONS FOR FLOOD (BARRIS, FURNACE AND SOIL) SYSTEMS**  
Apply this product only through irrigation systems. Apply this product only through irrigation systems. Apply this product only through irrigation systems.

**USE PRECAUTIONS FOR SPRINKLER IRRIGATION**  
Apply this product only through irrigation systems. Apply this product only through irrigation systems. Apply this product only through irrigation systems.

**USE PRECAUTIONS FOR Drip (TRUCKLE) IRRIGATION**  
Apply this product only through irrigation systems. Apply this product only through irrigation systems. Apply this product only through irrigation systems.

**CULTIVATION AND PLANTING AFTER APPLICATION**  
Do not use in areas where children play. Do not use in areas where children play. Do not use in areas where children play.

**SPECIAL INSTRUCTIONS**  
Do not use in areas where children play. Do not use in areas where children play. Do not use in areas where children play.

**USES, APPLICATION METHODS & RATES FOR SHALLOW ROOTS IN BEDDING, PLANT GROW LAWNS AND OTHER LIMITED AREAS**  
Apply this product only through irrigation systems. Apply this product only through irrigation systems. Apply this product only through irrigation systems.

**COMMERCIAL WATER PROPORTIONER METHOD**  
Apply this product only through irrigation systems. Apply this product only through irrigation systems. Apply this product only through irrigation systems.

**SOIL INJECTION**  
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**ROTARY TILLAGE**  
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**FLOOD APPLICATION—WHERE ENTIRE AREA IS BEING TREATED**  
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**SPRINKLER SYSTEM**  
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**CHECK ON FLOOD IRRIGATION**  
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**FLOOD APPLICATION TO BEDS OR ROWS**  
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**SOIL INJECTION**  
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**USE PRECAUTIONS FOR SPRINKLER IRRIGATION**  
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# Vapam<sup>®</sup>

## Soil Fumigant Solution For All Crops

<b>ACTIVE INGREDIENT:</b>	
Sodium methyldithiocarbamate (anhydrous)	32.7%
<b>INERT INGREDIENTS:</b> 67.3%	
Contains 3.18 lbs. active ingredient per gallon 100.0%	

NOT REVIEWED  
In Accordance with FR Notice 82-24  
Based on Draft Labeling D. 188  
*Quinn*

**Keep Out  
of Reach  
of Children  
WARNING  
Harmful If  
Swallowed**

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EPA Reg. No. 10182-150

EPA Est. No. 10182-CA-002,

10182-AR-1

Superscript corresponds to first letter of lot number located below.

A-4R  
DE 9-89

LOT NO. \_\_\_\_\_  
DATE OF MANUFACTURE \_\_\_\_\_

*PM 21 10182-150 pg. 108-17*

0047  
0003

## Keep Out of Reach of Children

# WARNING

### Statement of Practical Treatment

#### FIRST AID

Immediately start the procedures given below and CONTACT A POISON CENTER, A PHYSICIAN OR THE NEAREST HOSPITAL. Describe the type and extent of exposure, the victim's symptoms, and follow the advice given.

**For skin contact,** flush affected areas with large amounts of running water for 15 minutes and get medical attention. Remove and clean contaminated clothing and shoes.

**For eye contact,** immediately flush eyes with large amounts of running water for 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids with water. Get medical attention immediately.

**If inhaled,** remove to fresh air. If breathing is difficult, oxygen may be given with a physician's advice. If not breathing, clear victim's airway, start mouth-to-mouth artificial respiration, and get medical attention.

**If swallowed,** immediately give several glasses of water but do not induce vomiting. If vomiting occurs, give fluids again. Have a physician determine if condition of patient will permit induction of vomiting or evacuation of stomach. Do not give anything by mouth to an unconscious or convulsing person.

**FOR 24-HOUR EMERGENCY MEDICAL ASSISTANCE, CALL (800)-F-A-S-T-M-E-D (327-8633).**

**FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident call CHEMTREC 1-800-424-9300.**

For other product information, contact your local ICI Americas Inc. Distributor or see Material Safety Data Sheet.

## PRECAUTIONARY STATEMENTS

### Hazards to Humans and Domestic Animals

## WARNING

HARMFUL IF INHALED OR SWALLOWED. IRRITATING TO EYES, NOSE, THROAT AND SKIN. Avoid breathing vapor or spray mist. Do not get in eyes, on skin, or on clothing. Causes skin irritation. Prolonged contact may cause severe skin irritation. May be fatal if absorbed through skin. In case of contact, immediately remove contaminated clothing. Wash and dry clothing before reuse. Where adequate ventilation is not available, use NIOSH approved full face pesticide canister respirators to reduce exposure. Where exposure potential under the use conditions necessitates a higher level of protection, use a full face positive pressure air-supplied respirator.

### Environmental Hazards

This product is toxic to fish. Do not apply directly to water. Do not apply where runoff is likely to occur. Do not contaminate water when disposing of equipment wash waters. Apply this product only as specified on the label.

### Product Information

VAPAM is a water soluble liquid. When applied to properly prepared soil, the liquid is converted into a gaseous fumigant. After a sufficient interval of time, the gas dissipates, leaving the soil ready for planting. VAPAM is recommended for the control of the following soilborne pests that attack ornamental, food and fiber crops: Weeds and germinating weed seeds [Annual Bluegrass, Bermudagrass, Chickweed, Dandelion, Ragweed, Henbit, Lambsquarters, Amaranthus sp. (Pigweed, Careless weed), Watergrass, Johnsongrass, Nutsedge, Wild morning glory and Purslane], Nematodes, Symphylans (Garden Centipede) and soilborne diseases (Rhizoctonia, Phythium, Phytophthora, Verticillium, Sclerotinia, Oak Root Fungus and Club Root of Crucifers).

### Use Precautions

Keep children and pets out of treated area until dry. Keep off desirable lawns and plants. Do not apply within 3 feet of the drip line of desirable plants, shrubs or trees. Do not use in confined areas without adequate ventilation OR where fumes may enter nearby houses containing growing plants. Do not use in greenhouses when desirable plants are present. Keep container tightly closed when not in use. Do not store near feed or food.

### DIRECTIONS FOR USE

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

Before applying VAPAM, always cultivate thoroughly area to be treated, breaking up clods and loosening soil deeply and thoroughly. A week before treatment, moisten soil after cultivation to the desired depth, sprinkle or flood irrigate. See section POTATOES, PACIFIC NORTHWEST AND NORTH CENTRAL STATES - FALL APPLICATION, where no till stubble or cover crops exist for specific application directions. Immediately before application, cultivate lightly if soil has crusted.

To prevent loss from evaporation, use only at times when air temperature is moderate and there is little wind movement. Soil temperature must be from 40-90° F in the treated zone. Treated zone is defined as the depth of treatment that VAPAM achieves at the time of application. For other conditions, see section Cultivation & Planting After Application. Do not apply to the soil surface as in the sprinkler method when air temperature is over 90° F or when low humidity or high winds would cause loss of VAPAM before it can be drenched into the soil with additional water. If fumes become unpleasant during treatment, apply more water to seal the fumes into the soil where they should be confined to achieve maximum fumigant benefit.

Where rate ranges for VAPAM are given, use the higher rate if pests (insects, nematodes, etc.) are present in high numbers or if the area to be treated has a history of pest problems.

The activity of VAPAM is increased by the use of a tarp (plastic, paper or fabric) spread loosely over the treated area and secured to prevent removal by wind. Keep

covered for a minimum period of 48 hours. Seven days after treatment, cultivate area to depth of 2 inches to aerate the soil. To avoid crop injury, do not seed earlier than 21 days after application when tarping method is used.

**APPLICATION IN TANKMIX WITH LIQUID FERTILIZER:** VAPAM may be injected in a mixture with liquid fertilizers. Since the composition of liquid fertilizers vary considerably, the physical compatibility of each fertilizer/VAPAM tankmix should be checked by using the following procedure:

Mix a small quantity of VAPAM and liquid fertilizer in a glass container. VAPAM and fertilizer should be mixed in the same ratio as they will be applied to the field (i.e. if 40 gallons of VAPAM and 40 gallons of liquid fertilizer are to be applied per acre, then VAPAM and fertilizer should be mixed in the jar in a 40:40 or 1:1 ratio). Agitate the liquids to attain a complete mixture. If a uniform mix cannot be made, the mixture should not be used. If the mixture remains uniform 30 minutes, the combination may be used. Should the mixture separate after 30 minutes, but readily remix uniformly with agitation, the mixture can be used if adequate agitation is maintained in the tank. DO NOT PLACE CAPS ON JAR, AS INCOMPATIBLE MIXES MAY EVOLVE HYDROGEN SULFIDE GAS.

USE PROMPTLY AFTER MIXING WITH WATER OR FERTILIZER. DO NOT ALLOW SOLUTION TO STAND. Flush all equipment with water after each day's use. Disassemble valves and clean carefully.

### USE PRECAUTIONS FOR IRRIGATION SYSTEMS

- Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll traveler, solid set, or hand move, flood (basin), furrow border, or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.
- Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.
- If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
- Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label prescribed safety devices for public water systems are in place.
- A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

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#### USE PRECAUTIONS FOR FLOOD (BASIN), FURROW AND BORDER IRRIGATION

1. Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops

2. Systems utilizing a pressurized water and pesticide injection system must meet the following requirements

a. The system must contain a functional check valve, vacuum-relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow

b. The pesticide injection pipeline must contain a functional, automatic quick closing check valve to prevent the flow of fluid back toward the injection pump

c. The pesticide injection pipeline must also contain a functional, normally closed, solenoid operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down

d. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops

e. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected

f. Systems must use a metering pump such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock

#### USE PRECAUTIONS FOR SPRINKLER IRRIGATION

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow

2. The pesticide injection pipeline must contain a functional, automatic quick closing check valve to prevent the flow of fluid back toward the injection pump

3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid operated valve located on the intake side of the injection pump

and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down

4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected

6. Systems must use a metering pump such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock

7. Application of more than recommended quantities of irrigation water may result in decreased product performance by removing the chemical from the zone of effectiveness

8. Do not apply when wind speed favors drift beyond the area intended for treatment

#### USE PRECAUTIONS FOR DRIP (TRICKLE) IRRIGATION

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow

2. The pesticide injection pipeline must contain a functional, automatic quick closing check valve to prevent the flow of fluid back toward the injection pump

3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down

4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected

6. Systems must use a metering pump such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock

#### CULTIVATION AND PLANTING AFTER APPLICATION

On well drained soils of light to medium texture which are not excessively wet or cold following application planting may take place 14 to 21 days after treatment. If soils are heavy or especially high in organic matter or remain wet and/or cold (below 60° F.) following application of VAPAM, an extended interval should be observed. Where dosages are greater than 100 gal per acre wait at least 60 days. On heavy wet soils light surface cultivation to break up crusting and promote drying of the soil should be done 5 to 7 days after application. This cultivation may be repeated as necessary. To avoid re-inesting treated soils, cultural practices should be such that untreated soils are not mixed with treated soils.

**SPECIAL INSTRUCTIONS:** When treating potting soil or heavier field soils including soils high in clay or organic matter, it is essentially important that the soils be allowed to aerate and dry thoroughly after using VAPAM. During cold and/or wet weather frequent shallow cultivations may aid the escape of VAPAM from the soil. If in doubt, transplant a seedling plant and examine for injury before planting crop.

#### USES, APPLICATION METHODS & RATES

##### FOR SHALLOW PESTS IN SEEDBEDS, PLANT BEDS, LAWNS AND OTHER LIMITED AREAS:

**SPRINKLING CAN METHOD:** Place 1 pt. VAPAM (1.1 pt. on very heavy soils or for deep rooted weeds) in a sprinkling can, fill with water, and sprinkle uniformly over 50 sq. ft. of well prepared soil. Sprinkle immediately with water until soil is sealed, or tarp for 48 hours.

**COMMERCIAL MIXER PROPORTIONER METHOD:** Add 1 qt. VAPAM to 3 qt. water in a bucket or other container and apply through the mixer proportioner to an area of 100 sq. ft. Sprinkle with water until soil is sealed, or tarp for 48 hours.

**SOIL INJECTION:** Space injectors 5 in. apart and inject VAPAM 4 in. into well prepared soil. Follow immediately with a roller to smooth and compact the soil surface. Light watering or a tarp after rolling helps prevent gas escape. For seedbeds a dosage of 75 to 100 gal per acre (1 1/2 pt. to 2 pt. per 100 sq. ft.) is recommended.

**ROTARY TILLER:** Spray or sprinkle diluted VAPAM immediately in front of tiller. Use 1 qt. VAPAM in 2 1/2 gal. water per each 100 sq. ft. Follow immediately with a

roller to smooth and compact the soil surface. Light watering or a tarp after rolling will help prevent gas escape.

#### FIELD APPLICATION—WHERE ENTIRE AREA IS BEING TREATED:

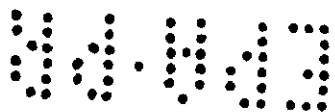
**SOIL INJECTION:** Using injectors spread 5 in. apart or using injector blades, inject VAPAM 4 in. deep into well prepared soil. Follow immediately with a roller to smooth and compact surface. Light watering or a tarp after rolling helps prevent gas escape. For field use 50 to 100 gal. VAPAM per acre is recommended.

**SPRINKLER SYSTEM:** Use only those sprinkler systems which give large water droplets to prevent excess loss. Use 75 to 100 gal. VAPAM per acre. For control of shallow pests (top 1 ft. or less of soil) run sprinklers 3 to 10 min. in next 10 to 20 min. inject into the sprinkler system all VAPAM needed for the area covered. On very light soils keep surface moist by sprinkling for 2 or 3 days. For control of pests deeper than 18 in. in the soil, divide VAPAM into 3 or more equal parts and apply at intervals during the sprinkling period.

**CHECK OR FLOOD IRRIGATION:** Meter VAPAM at a steady rate into water during irrigation. Use 50 to 100 gal. VAPAM per acre, depending upon the kind of pest and depth desired, in 3 to 18 inches of water per acre.

#### FIELD APPLICATION TO BEDS OR ROWS:

**SOIL INJECTION:** VAPAM at the rate of 75 to 100 gallons per treated acre (1 1/2 to 2 pints per 100 sq. ft.) may be injected into pre formed plant beds following



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the directions given above under soil injection. If a wider treated band is desired, space 2 or more injectors (shanks, blades, fertilizer wheels, etc.) at intervals of 5 in. to cover the desired treating width. Roll immediately.

If VAPAM is injected into established plant beds through plastic tarps to terminate growth of a previous crop, and to fumigate the bed in preparation for planting a subsequent crop, the terminated crop should not be used for any food or feed purpose after VAPAM has been applied.

Drip irrigation. VAPAM must be applied through a drip irrigation system to wet the soil thoroughly in the area being treated.

Meter 25 to 75 gallons VAPAM per treated acre into the drip system during the entire irrigation period. APPLICATION MUST BE CONTINUOUSLY SUPERVISED. THIS IS VERY IMPORTANT. WEED ELIMINATION WILL NOT BE SATISFACTORY IF TOO MUCH WATER IS APPLIED. An adequate concentration of VAPAM must be present at the time of weed seed germination in order to be effective. Further directions for use are as follows:

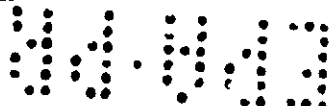
1. Ground must be in seed-bed condition, no clods larger than 1/2" in diameter.
2. Beds must be leveled, shaped and ready for planting.
3. Soil moisture must be at 50% of field capacity in the top 2-3" at time of VAPAM application.

Tankmix with TILLAM® 6E herbicide (tomatoes only)

A tankmix of VAPAM soil fumigant plus TILLAM 6E herbicide may be used when desired. The mixture must be applied preplant to tomatoes if all directions and precautions pertaining to both VAPAM and TILLAM 6E are followed. Apply through a spray blade by shank injection, low pressure boom sprayer or (Western Region only) through solid set sprinkler systems.

**SOIL COVERING METHODS** (Bed-over methods) VAPAM may be sprayed or dripped onto the soil immediately ahead of bedshaping equipment. Cover the VAPAM with soil to a depth of 3 to 6 inches. The soil should be rolled and compacted immediately. The recommended rate of VAPAM is 50 to 100 gal. per treated acre, approximately equivalent to 1 to 2 pints per 100 sq. ft. of treated bed.

**TREATMENT OF TREE REPLANT SITES** After removing dead or diseased tree and as much of the root system as possible, make a shallow basin over the planting site. Add VAPAM to the stream of water while filling the basin. Use 1 qt. VAPAM per 100 sq. ft. in sufficient water (depending on soil type) to penetrate at least 6". For control of Oak root fungus, use basin at least 20 x 20 ft. square. Increase dosage to 2 qt. VAPAM per 100 sq. ft. in sufficient water to penetrate to the depth of root system. If water is tanked to the planting site, add VAPAM to the water and mix before filling basin.



#### TREATMENT OF POTTING SOIL:

##### A. SPRINKLER METHOD

1. Spread soil in a smooth layer 4 inches high on concrete or on pretreated soil.
2. Sprinkle VAPAM at rate of 1 pint in 5 gallons of water per 100 sq. ft. of surface area.
3. Layers can be treated one on top of another.
4. Sprinkle top layer with sufficient additional water to seal the surface or cover with tarp (plastic, kraft paper, etc.).

##### B. CEMENT MIXER

1. Add VAPAM to soil mix at rate of 1 fl. oz. VAPAM per 2 cu. ft. of soil in cement or similar mixer. Mix thoroughly.
2. After soil is treated and piled, sprinkle water over entire surface to seal in gas. Or cover with tarp (plastic, kraft paper, etc.).

##### C. SHREDDER

1. Dilute VAPAM in sufficient water to obtain even distribution. As soil is ejected from shredder, spray uniformly on soil stream at rate of 1 fl. oz. VAPAM per 2 cu. ft. of soil.
2. After all soil is treated and piled, apply light water seal to entire surface or cover with tarp.

**POTATOES, PACIFIC NORTHWEST AND NORTH CENTRAL STATES\***—Fall Application. To suppress nematodes and *Verticillium dahliae* (Early Maturity Disease) in potatoes, use 50 to 100 gallons of VAPAM per treated acre. Inject into the sprinkler system. (Refer to USE PRECAUTIONS FOR IRRIGATION SYSTEMS, Part A) all of the VAPAM needed for the area covered and apply in a minimum of 1 acre-inch of water. VAPAM may be applied where crop stubble or vegetation exist without prior tillage, provided there is adequate soil penetration of VAPAM. \*Not for use in California.

**EARLY MATURITY DISEASES OF POTATOES IN OREGON** Apply 40 gals. VAPAM per acre using thin shank injector rig with shanks spaced 5 inches apart.

**NOTE** VAPAM will only control nematodes which are in the treated zone at time of treatment. VAPAM has no soil residual and reinfestation of a field can occur from numerous sources such as deep nematode populations, potato seed pieces, equipment contamination and blowing soil.

**TOBACCO PLANT BEDS** Fall applications are recommended wherever possible. Read and follow DIRECTIONS FOR USE carefully. Treatment in the south should generally be made before November 30.

**A. TARP METHOD** Prepare the bed 5 to 7 days before application to insure best conditions for weed seed germination and fumigant action of VAPAM. The bed should be free of clods, level and in good tilth. Apply 1 to 1 1/2 gal. of VAPAM in a minimum of 40 gal. of water per 100 sq. yd. Apply uniformly over the entire bed.

Cover the bed immediately with a plastic cover. Keep covered no less than one day but no more than two days. The cover need not be tented, but should be secured to prevent wind from uncovering the treated area. Seven days after date of VAPAM application, loosen the treated soil to a depth of 2 in. Do not seed tobacco earlier than 21 days after VAPAM application.

**B. DRENCH METHOD** Apply 2 1/2 gal. VAPAM in 150 to 200 gal. of water per 100 sq. yd. Application may be made with sprinklers, sprayers with nozzles or any suitable equipment. Follow directions given above for seed bed treatment.

**SYMPHYLAN CONTROL** Soil should be in good seedbed condition to a depth of 8 to 20 inches. Maintain adequate moisture during spring season. Treat during July-August when symphyllans are in the upper soil surface. Apply 20 gal. VAPAM per treated acre (0.4 pints per 100 sq. ft.) using blade or chisel injectors spaced 5 inches apart. Inject below level of symphyllan concentration, usually 6 to 8 inches. Pack soil immediately after application.

**PEPPERMINT** *Verticillium* wilt control. When infection is limited to small spots in a field, spread can be reduced by treating the soil with 100 gal. VAPAM per treated acre (2 pints per 100 sq. ft.) using injector blade or thin shank injector rig with injectors spaced 5 inches apart.

#### PREVENTION OF ROOT GRAFT TRANSMISSION OF DUTCH ELM AND OAK WILT DISEASE

Immediately after a tree is diagnosed as having Dutch Elm or Oak Wilt disease, isolate the diseased tree from healthy trees with the VAPAM treatment. If a diseased tree is less than 20 feet from a healthy tree or has advanced wilt symptoms, it may be necessary to treat at two sites—one between the diseased and the first healthy appearing tree and one between the first and the second healthy appearing trees. This measure is advisable because the causal fungus may have already passed from the diseased to the first healthy appearing tree before VAPAM was applied.

Use VAPAM diluted one part to three parts water for Dutch Elm disease and diluted one part to ten parts of water for Oak Wilt disease. Drill holes approximately 3/4 to 1 inch in diameter, 15 inches deep to 6 to 8 inches apart. Fill each hole with diluted VAPAM to within 2 inches of the soil surface.

Make the line of treatment sufficiently long to kill all roots of the two adjacent trees that are likely to be root grafted. Apply the chemical slowly and carefully to avoid overflowing the drilled holes; this will reduce gas kill. Tamp each hole closed with the heel. Allow at least two weeks after treatment before removing the diseased tree.

#### STORAGE AND DISPOSAL

**PROHIBITIONS:** Do not contaminate water, food or feed by storage or disposal.

**STORAGE:** Do Not Store Below 0 F. Product crystallizes at lower temperatures. Warm or store at higher temperatures and mix to redissolve crystals and assure uniformity before use.

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

This product is sold only for uses stated on its label. No express or implied license is granted to use or sell this product under any patent in any country except as specified. Country: United States of America.

#### NOTICE TO BUYER AND USER

Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal use conditions, or under conditions not reasonably foreseeable to Seller, and Buyer and User assume the risk of any such use. SELLER DISCLAIMS ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING ANY WARRANTY OF FITNESS OR MERCHANTABILITY. SELLER SHALL NOT BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT AND SELLER'S SOLE LIABILITY AND BUYER'S AND USER'S EXCLUSIVE REMEDY SHALL BE LIMITED TO THE REFUND OF THE PURCHASE PRICE.

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ICI Americas Inc.  
Wilmington, Delaware 1989

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...  
TACT A POISON CENTER, A PHYSICIAN, OR THE NEAREST HOSPITAL. Describe the type and extent of exposure, the victim's symptoms, and follow the advice given.  
**For skin contact**, flush affected areas with large amounts of running water for 15 minutes and get medical attention. Remove and clean contaminated clothing and shoes.

**For eye contact**, immediately flush eyes with large amounts of running water for 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eye and lids with water. Get medical attention immediately.

**If inhaled**, remove to fresh air. If breathing is difficult, oxygen may be given with a physician's advice. If not breathing, clear victim's airway, start mouth-to-mouth artificial respiration, and get medical attention.

**If swallowed**, immediately give several glasses of water but do not induce vomiting. If vomiting occurs, give fluids again. Have a physician determine if condition of patient will permit induction of vomiting or evacuation of stomach. Do not give anything by mouth to an unconscious or convulsing person.

**FOR 24-HOUR EMERGENCY MEDICAL ASSISTANCE, CALL (800)-F-A-S-T-M-E-D (327-8633).**

**FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident call CHEMTREC 1-800-424-9300.**

For other product information, contact your local ICI Americas Inc. Distributor or see Material Safety Data Sheet.

## **PRECAUTIONARY STATEMENTS**

### **Hazards to Humans and Domestic Animals**

## **WARNING**

HARMFUL IF INHALED OR SWALLOWED. IRRITATING TO EYES, NOSE, THROAT AND SKIN. Avoid breathing vapor or spray mist. Do not get in eyes, on skin, or on clothing. Causes skin irritation. Prolonged contact may cause severe skin irritation. May be fatal if absorbed through skin. In case of contact, immediately remove contaminated clothing. Wash and dry clothing before reuse. Where adequate ventilation is not available, use NIOSH approved full-face pesticide canister respirators.

Do not apply where runoff is likely to occur. Do not contaminate water when disposing of equipment washwaters. Apply this product only as specified on the label.

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**CONTAINER DISPOSAL:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

## **NOTICE TO BUYER AND USER**

Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in accordance with directions under normal conditions of use. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal use conditions, or under conditions not reasonably foreseeable to Seller, and Buyer and User assume the risk of any such use. SELLER DISCLAIMS ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING ANY WARRANTY OF FITNESS OR MERCHANTABILITY. SELLER SHALL NOT BE LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT AND SELLER'S SOLE LIABILITY AND BUYER'S AND USER'S EXCLUSIVE REMEDY SHALL BE LIMITED TO THE REFUND OF THE PURCHASE PRICE.

# 5 GAL. NET 18.9 L

Made in U.S.A. by



**Agricultural Products**

ICI Americas Inc.  
Wilmington, Delaware 19897

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