

VAPAM

Soft Fumigant Solution For All Crops

PM2!
10182-450
pg. 1 of 10

ACTIVE INGREDIENT:
Sodium methylthiocarbamate (anhydrous) 32.7%
INERT INGREDIENTS: 67.3%
* Contains 3.18 lbs. active ingredient per gallon 100.0%

Keep Out of Reach of Children

ACCEPTED

WARNING

Statement of Practical Treatment

SEP 22 1988
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 10182-450

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 ICI AMERICAS MEDICAL EMERGENCY INFORMATION CENTER (800) 327-8633 OR CHEMTREC (800) 424-9300.

See Side Panel for Additional Precautionary Statements

EPA Reg. No. 10182-150 GAL. NET

RS-880817

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.

Made in U.S.A. By
ICI AMERICAS INC.
AGRICULTURAL PRODUCTS
WILMINGTON, DE 19397

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 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 cannister 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, nutgrass, wild morningglory and purslane] nematodes, symphylans, (garden centipede); and soilborne diseases (Rhizoctonia, Phythium, Phytophthora, Verticillium, Sclerotinia, oak root fungus and club root or crutifers).

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.

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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. This step is essential for all methods of use. Immediately before application, cultivate lightly if the 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 in the range of 40°-90°F at a 3 inch depth. 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.

USE PROMPTLY AFTER MIXING WITH WATER. 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

- A. Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roller, traveler, solid set, or hand move; flood (basin); furrow; border 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

- 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.

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.

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 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 (1-1/2 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 injection shanks 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: Space thin injection shanks 5 in. apart and 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, 40 to 100 gal. VAPAM per acre is recommended.

SPRINKLER SYSTEM: Use only those sprinkler systems which give large water droplets to prevent excessive 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 10 to 20 min. inject into the sprinkler system all VAPAM need 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 the directions given above under soil injection. If a wider treated band is desired, space 2 or more shanks at intervals of 5 in. to cover the desired treating width. Roll immediately.

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.

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.

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 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. 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 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 seedbed treatment.

SYMPHYLAN CONTROL: Soil should be in good seedbed condition to a depth of 8 to 10 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 OF POTATOES IN OREGON: Apply 40 gals. VAPAM per treated acre using thin shank injector rig with shanks spaced 5 inches apart.

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.

pg 9 of 10

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 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.

9 5