

## 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 soil-borne pests that attack ornamental, food and fibre crops: nematodes and germinating weed seeds (annual bluegrass, Bermudagrass, chickweed, dandelion, ragweed, henbit, lambsquarters, Amaranthus sp., pigweed, carex, wild water-grass, Johnsongrass, matgrass, and morningglory and purslane); nematodes, symphyids (green centipede); and soil-borne diseases (Rhizoctonia, Pythium, Phytophthora, Verticillium, Sclerotinia, Oak root fungus and club root of crucifers).

## USE PRECAUTIONS

Keep children and pets out of treated area. Keep off of treated 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 where desirable plants are present. Keep container tightly closed when not in use. Do not store near feed or food.

**FISH CAUTIONS:** This product is toxic to fish. Keep out of lakes, streams, or ponds. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from areas treated. Do not contaminate water by cleaning of equipment, or disposal of wastes. Apply this product only as specified on this label.

## DIRECTIONS FOR USE

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 60-90 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.

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. 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.

## 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 a main wet and or cold (below 60 F.), following application of Vapam a minimum interval of 30 days should be observed. Where dosages are greater than 100 gal. per acre, wait at least 30 days. On heavy wet soils, light surface cultivation to break up crusts and promote drying of the soil should be done 7 to 10 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 SEED BEDS, 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.

**HOSE PROPORTIONER METHOD:** Add 1 qt. Vapam to 3 qt. water in a bucket or other container and apply using a hose 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 tiler. 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 and inject on 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 needed for the area covered. On

# VAPAM

## SOIL FUMIGANT SOLUTION FOR ALL C

©TM Stauffer Chemical Company

ACTIVE INGREDIENTS: Sodium methyl dithiocarbamate (anhydrous)

INERT INGREDIENTS

U.S. Pat. Nos. 2,766,554; 2,741,691

## CAUTION

**HARMFUL IF INHALED OR SWALLOWED - IRRITATING TO EYES, NOSE, THROAT**

Avoid breathing vapor or spray mist.

Do not get in eyes, on skin, on clothing.

In case of contact, immediately remove contaminated clothing or shoes and flush skin with plenty of water, and apply soothing lotion; for eyes, flush with water for at least 15 minutes and get medical attention.

Wash and dry clothing and shoes before reuse.

When applying in enclosed areas, wear a respirator or a tarp, approved type, and a pair of gloves for Vapam protection.

**DO NOT REUSE CONTAINER. DESTROY WHEN EMPTY.**

## READ ALL LABEL DIRECTIONS BEFORE USING

DO NOT STORE BELOW 0 F. Product crystallizes at lower temperatures. Warm or store at higher temperatures and mix thoroughly before use and a more uniformity before use.

*NOTICE: Barzen of Mpls., Inc. makes express no implied, including the warranty of merchantability and or fitness for any purpose concerning this material, except the contained on Barzen's label.*

MADE IN U.S.A.

PACKED BY  
**BARZEN OF MINNEAPOLIS, INC.**  
MINNEAPOLIS, MINNESOTA 55440

# PAM<sup>®</sup>

**SOLUTION FOR ALL CROPS**

Stauffer Chemical Company

dithiocarbamate (anhydrous)

32.7%

67.3%

100.0%

**Keep Out of Reach of Children**

**POISONOUS - IRRITATING TO EYES, NOSE, THROAT AND SKIN**

When any eye contact and severe irritation occurs, flush eyes with water for at least 15 minutes. If irritation persists, consult a physician. Avoid contact with skin. Wash hands thoroughly after use. Do not breathe vapors. Do not get in eyes, nose, or mouth. Do not eat, drink, or smoke while using this product.

**CONTAINER DESTROY WHEN EMPTY**

**SING** NOTICE: *Stampanol M* makes no warranty, express or implied, including the warranties of merchantability and of fitness for any particular purpose, concerning this material except the amount of active ingredient therein.

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**STAUFFER CHEMICAL COMPANY**  
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MINNEAPOLIS, MINNESOTA 55440

**GAL. NET**

very light soils keep surface moist by sprinkling for 2 or 3 days. For soils of medium or heavy texture, divide Vapam into 10 equal parts and apply at intervals during the sprinkling period.

**CHECK OR FLOOD IRRIGATION:** If the Vapam is applied at a steady rate into a stream, the water should be checked at intervals of 10 to 15 minutes. If the water is not clear, the Vapam is being applied too fast. If the water is clear, the Vapam is being applied at the correct rate.

**FIELD APPLICATION TO BEDS OR ROWS:**

**SOIL INJECTION:** For soil injection, use a hand-operated sprayer or pump sprayer following the manufacturer's directions. If a wide area is to be treated, use a tractor-mounted sprayer at intervals of 10 to 15 feet. The soil should be worked to a depth of 3 to 6 inches.

**SOIL COVERING METHODS:** Vapam may be applied to soil by spraying or by spreading. If spraying, use a hand-operated sprayer or pump sprayer. If spreading, use a broadcast spreader. The soil should be worked to a depth of 3 to 6 inches. The recommended application rate is 1 to 2 parts per 100 of soil in row.

**TREATMENT OF TREE REPLANT SITES:** After removing dead or diseased trees and as much of the root system as possible, make a shallow trench over the planting site. Add Vapam to the stream of water which flows in the trench. Use 1 qt. Vapam per 100 sq. ft. in a trench 6 inches wide. For soil of heavy texture, penetrate at least 6 ft. For control of oak root fungus, use a basin at least 20 x 20 sq. ft. In a basin, use 2 qt. Vapam per 100 sq. ft. in sufficient water to penetrate to the depth of 6 inches. If water is tamped 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 uniform layer 4 inches deep in a 100 sq. ft. area.
2. Sprinkle Vapam at rate of 1 part to 10 parts of water (1 x 10) in a 100 sq. ft. area.
3. Repeat the treatment on top of an inch.
4. Sprinkle a top layer with sufficient additional water to saturate the soil. Cover with tarp, kraft paper, etc.

**B. CEMENT MIXER:**

1. Add Vapam to soil mix at rate of 1 fl. oz. Vapam per 1 cu. ft. of soil mix.

2. Mix soil mix in a cement mixer thoroughly.

3. Spread soil in a uniform layer 4 inches deep in a 100 sq. ft. area. Cover with tarp, kraft paper, etc.

**C. SHREDDER:**

1. Spread Vapam in a uniform layer 4 inches deep in a 100 sq. ft. area.

2. Shred soil with a shredder, spray, or blower. Stream of water should be applied at rate of 10 to 20 gal. Vapam per 100 sq. ft.

3. After shredding, add water and provide sufficient water to enter soil to a depth of 6 inches.

**TOBACCO PLANT BEDS:** For applications are recommended whenever 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 condition. 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 and no more than two days. The cover need not be tamped, 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 100 to 150 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.

**SYMPHYLID CONTROL:** Soil should be in good seed bed condition to a depth of 8 to 10 inches. Maintain adequate moisture during spring season. Treat during July-August when symphyliids are in the upper 6 inches. Apply 20 gal. Vapam per acre using blade or chisel injector. Inject to 6-8 inch level of symphyliid concentration, usually 6 to 8 inches. Pack soil immediately after application.

**EARLY MATURITY DISEASES OF POTATOES IN OREGON:** Apply 40 gal. Vapam per acre using thin shank injector rig.

**PEPPERMINT—Verticillium wilt control:** When infestation is limited to small spots in a field, spread can be reduced by treating the soil with 150 gal. Vapam per acre using injector blade or thin shank injector rig.

**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 casual 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 Wilt disease and diluted one part to ten parts of water for Oak Wilt disease. Dig holes approximately 3/4 to 1 inch in diameter, 15 inches deep, to 6 to 8 inches apart. Fill each hole with dusted Vapam to within 2 inches of the soil surface.

Repeat the line of treatment sufficiently close to the diseased tree and adjacent trees that are likely to be grafted. Apply the chemical in a line and carefully to avoid covering the grafted nodes. This will reduce the risk of graft union being closed with the herbicide. Wait at least two weeks after treatment before removing the diseased tree.

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 FOR THE CONTROL OF WEEDS  
 AND SOIL-BORING INSECTS  
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