## PRODUCT INFORMATION

VAPAM is a water soluble liquid. When applied to properly prepared On well drained soils of light to medium texture which are not ex-Verticillium, Sclerotinia, Oak root fungus and club root of crucifers).

## USE PRECAUTIONS

Keep children and pets out of treated area. Keep off distrable 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, FOR SHALLOW PESTS IN SEED BEDS, PLANT BEDS, LAWNS AND streams, or ponds. Do not apply where runoff is likely to occur. Do OTHER LIMITED AREAS: 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

sired depth; sprinkle or flood irrigate. This step is essential for all turp for 48 hours. methods of use. Immeriately before application, cultivate "ently if SOIL INJECTION: Space injection shanks 5 in. apart and inject Vapam the soil has crusted.

with additional water. If fumes become unpicasant during treatment, escape, apply more water to seal the fumes into the soil where they should FIELD APPLICATION—WHERE ENTIRE AREA IS BEING TREATED: be confined to achieve maximum fumigant benefit.

48 hours. Seven days after treatment cultivate area to depth of 2 vapam per acre is recommended. inches to aerate the soil. Do not seed earlier than 21 days after SPRINKLER SYSTEM: Uso only those sprinkler systems which give application when tarping method is used.

SOLUTION TO STAND. Flush all equipment with water after each soil), run sprinklers 5 to 10 min. In next 10 to 20 min. inject into day's use. Disassemble valves and clean carefully.

## CULTIVATION AND PLANTING AFTER APPLICATI

soil, the liquid is converted into a gaseous fumigant. After sufficient cessively wet or cold following application, planting may take place interval of time, the gas dissipates leaving the soil ready for plant- 14 to 21 days after treatment. If soils are heavy or especially high in ing. Vapam is recommended for the control of the following soils organic matter or remain wet and or cold (below 60 F.) following borne pests that attack ornamental, food and fibre crops: Weeds application of Vapam, a minimum interval of 30 days should be oband germinating weed seeds [annual bluegrass, Bermudagrass, chick-served. Where dosages are greater than 100 gal. per acre, wait at least weed, dandelion, ragweed, henbit, lambsquarters, Amaranthus sp. 60 days. On heavy, wet soils, light surface cultivation to break up (pigweed, careless weed) watergrass, Johnsongrass, nutgrass, wild crusting and promote drying of the soil should be done 5 to 7 days morningglory and pursiane] nematodes, symphylids (garden centi- after application. This cultivation may be repeated as necessary. To pede); and soil-borne diseases (Rhizoctonia, Pythium, Phytophthora, 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

## **USES, APPLICATION METHODS & RATES**

SPRINKLING CAN METHOD: Place 1 pt. Vapam (11/2 pt. on very heavy soils or for deep-rooted weeds) in a sprinking 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.

Before applying Vapam always cultivate thoroughly area to be HOSE PROPORTIONER METHOD: Add 1 qt. Vapam to 3 qt. water in treated, breaking up clods and loosening soil deeply and thoroughly. a bucket or other container and apply, using a hose proportioner, to A week before treatment, moisten soil after cultivation to the de- an area of 100 sq. ft. Sprinkle with water until soil is sealed, or

4 in, into well prepared soil. Follow immediately with a roller to To prevent loss from evaporation, use only at times when air tem- smooth and compact file soil surface. Light watering or a tarp after perature is moderate and there is little wind movement. Soil tempers rolling helps prevent gas escape. For seedbeds a dosage of 75 to ature must be in the range of 60-90 F, at a 3 inch depth. For other 100 gal. per acre (112 pt. to 2 pt. per 100 sq. ft.) is recommended. conditions, see section, "Cultivation & Planting After Application". ROTARY TILLER: Spray or sprinkle diluted Vapam immediately in Do not apply to the soil surface, as in the sprinkler method, when front of tiller. Use 1 qt. Vapam in 212 gal. water per each 100 sq. ft. air temperature is over 90 F. or when low humidity or high winds Follow immediately with a roller to smooth and compact the soil would cause loss of Vapam before it can be drenched into the soll surface. Light watering or a tarp after rolling will help prevent gas

SOIL INJECTION: Space thin injection shanks 5 in, apart and inject

The activity of Vapam is increased by the use of a tarp (plastic, Vapam 4 in, deep into well prepared soil. Follow immediately with a paper or fabric) spread loosely over the treated area and secured to rotter to smooth and compact surface. Light watering or a tarp prevent removal by wind. Keep covered for a minimum period of after rolling helps prevent gas escape. For field use, 40 to 100 gal. [FA Bell No. 10878]

large water droplets to prevent excessive loss. Use 75 to 100 gail USE PROMPTLY AFTER MIXING WITH WATER. DO NOT ALLOW Vapam per acre. For control of shallow pests (top 1 ft. or less of the sprinkler system all Vapam needed for the area covered. On

# GAL.

SOIL FUMIGANT SOLUTION FOR ALL CR

® TM Stauffer Chemical Company

ACTIVE INGREDIENTS: Sodium methyl dithiocarbamate (anhydrous)..... INERT INGREDIENTS

U.S. Pat. Nos. 2.766,554; 2.791,605

# **CAUTION**

# Keep Out of Reach of Chil HARMFUL IF INHALED OR SWALLOWED . IRRITATING TO EYES, NOSE, THROAT AND

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 pient, of water, and apply soothing lotion; for eyes, flush with water for at least 15 minutes and get medical attention.

DO NOT REUSE CONTAINER. DESTROY WHEN EMPTY.

Wash and dry clothing and shoes before re-us When applying in electosed areas wear a m respirator of a type approved by the U.S. I of Mines for Vapam protection

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 to redissoive crystals and assure uniformity before use

NOTICE: Barzen of Mpls., Inc. makes no w express or implied, including the warranties chantability and/or fitness for any particu pose concerning this material, except those we contained on Barzen's label. 3 PA : - 1-15/8

MADE IN U.S.A.

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

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# SOIL FUMIGANT SOLUTION FOR ALL CROPS

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Avoid breathing vapor or spray mist.

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NOTICE: Barzen of Mpls., Inc. makes no warranty, express or implied, including the warranties of merchantability and/or fitness for any particular purpose concerning this material, except those which are C. SHREDDER: contained on Barzen's label.

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Wash and dry clothing and shoes before re-use.

When applying in enclosed areas wear a mask or

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

very light soils keep ace moist by sprinkling for 2 or 3 days. A. TARP METHOD: Prepare the bed 5 to 7 days before application to 3 or more equal parts and apply at intervals during the sprinkling

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

FIELD APPLICATION TO BEDS OR ROWS:

**SOIL INJECTION:** Vapam may be injected into pre-formed plant beds following the directions given above under son injection. If a wider treated band is desired, space 2 or more shanks at intervals of 5 in. to cover the desire! treating width, Roll immediately,

SOIL COVERING METHODS: (Bed-over methods). Vapam may be sprayed or dripped onto the soil immediately ahead of bed-shaping above for seed bed treatment. equipment. Cover the Vapam with soil to a depth of 3 to 6 inches. SYMPHYLID CONTROL: Soil should be in good seed bed condition to mended rate of Vapam is 50 to 100 gat, per acre, approximately equivalent to 1 to 2 pints per 100 ft. of 12-inch row.

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 EARLY MATURITY DISEASES OF POTATOES IN OREGON. Apply 40 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 sq. ft. Increase desage 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 POITING SOIL:

A. SPRINKLE METHOD:

1. Spread soil in a smooth layer 4 mohes 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 (piastic, kraft paper, etc.).

B. CEMENT MIXER:

1. Add Vapam to soil mix at rate of 1 fl. oz. Vapam per ? cu. ft. cf. soil, in cement or similar mixer. Mix thoroughly, After son is treated and piled, sprinkle water over entire surface

to sear in gas. Or, cover with tarp (plastic, kraft paper, etc.).

1. Dilute Vapam in sufficient water to obtain even distribution. Assoil is ejected from shredder, spray uniformly on soil stream at rate of 1 fi. 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.

TOBACCO PLANT BEDS: Fall applications are recommended wherever least two weeks after treatment before removing the developed tree. possible. Read and follow DIRECTIONS FOR USE carefully Treatment in the South should generally be made before November 30.

For control of pests deeper than 18 in. in the soil, divide Vapam into 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 11/2 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 re 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 212 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

The soil should be rolled and compacted immediately. The recome a depth of 8 to 10 inches. Maintain adequate moisture during spring son. Treat during July-Augus\* when symphylids are in the upper surface. Apply 20 gal. Vapam per acre using blade or chisel inpector. Inject below level of symphylid concentration, usually 6 to 8 inch is Pack soil immediately after application.

gals. Vapam per acre using thin shank injector rig.

PEPPERMINT-Verticilium wilt control. When infestation is limited to small spots in a field, spread can be reduced by treating the soil with 100 gals. 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 but disease, isolate the diseased tree from healthy trees with the \( \) Napam 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 healthyappearing tree and one between the first and the second healthyappearing trees. This measure is advisable because the casual fungus may have already passed from the diseased to the first healthyappearing tree before Vapam was applied.

Use Vapam diluted one part to three parts water for Dutch Elm discase and driuted one part to ten parts of water for Oak Wilt disease. Drill holes approximately 34 to 1 inch iii diameter, 15 inches deep to 6 to 9 inches apart. Fill each hole with diluted Vapam to within 2 inches of the soil surface.

Mark the line of treatment sufficiently long to kill all roots of the two a fjarent trees that are likely to be root-grafted. Ap; / the chemical solarly and carefully to avoid overflowing the drifted bites, this will reduce grass kill Tamp each hole closed with the hell. Allow at

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