

READ THE LABEL BEFORE USE. KEEP OUT OF REACH OF CHILDREN AND ANIMALS.



Herbicide

VAPAM

Reg. No. L 7858 Act No. 36 of 1947

4:10/6/2022 – Nov2024

A soil fumigant for the control of certain soil fungi, nematodes and germinating weed seeds in agricultural and horticultural soils, seedbeds and planting media as indicated.

ACTIVE INGREDIENT

metam-sodium (thiocarbamate) 510 g/l

GROUP	Z	HERBICIDE
GROUP	M3	FUNGICIDE
GROUP	8F	INSECTICIDE
GROUP	N-UNX	NEMATICIDE



DANGER



Hazard Statements:

May be harmful if swallowed.
May be harmful in contact with skin.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Precautionary Statements:

Wash hands and face thoroughly after handling.
Avoid release into the environment.
Wear impervious rubber gloves and boots, protective clothing, and chemical safety goggles.

☐ 208 l

☐ 1000 l

villa



UN Number: 3267

Registration holder: UNIVERSAL CROP PROTECTION (PTY) LTD.
Co. Reg. No. 1983/008184/07
65 Botes Road, Glen Marais, Kempton Park, 1619
Tel. (011) 396 2233
Website: www.villacrop.co.za

IN CASE OF POISONING / 24 HR EMERGENCY NUMBERS:
Griffon Poison Information Centre (National) : +27 82 446 8946
Poison Information Helpline (National): +27 861 555 777
24 Hr Transport / Spill emergency no: (Hazcall24) +27 86 044 4411
(Client: Villa Crop Protection)

DIRECTIONS FOR USE ENCLOSED
Batch Number: _____
Expiry Date: _____
Date of Manufacture: _____

REFER TO DETAILS AS PRINTED ON CONTAINER / BAG

VAPAM

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 HRAC HERBICIDE GROUP CODE: Z
 FRAC FUNGICIDE GROUP CODE: M3
 IRAC INSECTICIDE GROUP CODE: 8F
 NEMATICIDE GROUP CODE: N-UNX

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WARNINGS**Hazard statements:**

May be harmful if swallowed.
May be harmful in contact with skin.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
Very toxic to aquatic life.
Toxic to aquatic life with long lasting effects

- Handle with care.
- Toxic to fish and wildlife.
- Vacate the area immediately after treatment of soil.
- Do not use in confined areas without adequate ventilation, where fumes may enter adjoining premises containing growing plants.
- Do not use in greenhouses where desirable plants are present.
- Do not treat within 5 metres of existing trees and field crops.
- Store under lock and key in a cool, dry, well-ventilated place in the original container, tightly closed and secured.
- Store away from food, feeds, seed, fertilizers and other agricultural remedies.
- Keep out of reach of children, uninformed persons and animals.
- Re-entry: Do not enter treated area within 1 day after treatment unless wearing protective clothing.
- **In case of poisoning, take the patient immediately to a doctor and make this label available to him/her.**

Although this remedy has been extensively tested under a large variety of conditions, the registration holder does not warrant that it will be efficacious under all conditions, because the action and effect thereof may be affected by factors such as abnormal climatic and storage conditions, quality of dilution water, compatibility with other substances not indicated on the label and the occurrence of resistance of the pests to the remedy concerned, as well as by the method, time and accuracy of application. The registration holder further does not accept responsibility for damage to crops, vegetation, the environment or harm to man or animal or for lack of performance of the remedy concerned, due to failure of the user to follow the label instructions or to the occurrence of conditions, which could not have been foreseen in terms of the registration. Consult the supplier in event of any uncertainty.

PRECAUTIONS**Precautionary statements:**

Do not breathe dusts or mists.
Avoid breathing dust, fumes, mists, gas, vapours, or spray. (respiratory sensitization).
Wash hands and face thoroughly after handling.
Contaminated work clothing should not be allowed out of the workplace.
Avoid release to the environment.
Wear impervious rubber gloves and boots, protective clothing and chemical safety goggles.
IF SWALLOWED: Get medical help.

IF SWALLOWED: Rinse mouth. Do NOT Induce vomiting.
IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.
IF ENHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Wash contaminated clothing before use.
Collect spillage.
Store locked up.
Dispose of content/container to suitable landfill in accordance with local regulations

- Ventilate a confined area thoroughly during use.
- Wash with soap and water after use and after accidental skin contact.
- Do not eat, drink or smoke whilst mixing or applying the product, or before washing hands and face and change of clothing.
- Prevent contamination of food, feeds, drinking water and eating utensils.
- Prevent drift of spray mist onto other crops, grazing, rivers, dams and areas not under treatment or to nearby water sources.
- To prevent corrosion, clean spray equipment thoroughly after use or before using with other remedies.
- Thoroughly clean spraying equipment directly after use and dispose of wash water where it will not contaminate food, grazing, boreholes, rivers or dams.
- **TRIPLE RINSE THE EMPTY CONTAINER AS FOLLOWS:** Invert the empty container over the spray or mixing tank and drain for at least 30 seconds after the flow has slowed down to dripping. Thereafter rinse the empty container three times in succession with one quarter of the container volume fresh water and decant the rinsate into the spray or mixing tank. Puncture the triple rinsed container and dispose of via an approved collector or recycler www.croplife.co.za. Do not bury, burn, or donate the container to any other parties that may use it as a container for food or beverages.

SYMPTOMS OF HUMAN POISONING

Skin and eye irritation. May cause irritation to the respiratory tract. The solvent in the formulation may cause pulmonary injury.

FIRST AID TREATMENT

- Remove the victim from the area of exposure. Wash off remaining material with plenty of water. In the event of any complaints or symptoms, avoid further exposure and consult a doctor.
- **Inhalation:** Remove person from contaminated area to fresh air and assist breathing as needed.
- **Skin:** Remove contaminated clothing and shoes. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. **Immediately seek medical attention if irritation persists. VAPAM causes skin burns and an allergic skin reaction.**
- **Eyes:** Flush eyes with clean water for at least 15 – 20 minutes. Lift eyelids to facilitate irrigation. If present, remove contact lenses after 5 minutes and continue rinsing. **Seek medical attention. VAPAM causes severe eye damage.**
- **Ingestion:** Seek medical attention or call a poison control centre for treatment advice. Do not induce vomiting unless instructed to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person. If the person is alert, rinse mouth thoroughly with water.

NOTE TO PHYSICIAN

No product specific antidote is known. Probable mucosal damage may contra-indicate the use of gastric lavage. Treat symptomatically.

<u>Relevant hazardous components</u>	
Metam-Sodium	510 g a.i./ℓ

NOTE: The ingredients listed above contribute to the overall GHS classification, the remaining ingredients do not have to be listed according to the South African Regulations for Hazardous Chemical Agents 2021, Regulation 14(b).

In case of poisoning, call the following number: +27 82 446 8946 (Griffon Poison Information Centre) or +27 861 555 777 (Poison Information Helpline).

In case of a chemical spill call the following 24 Hr Transport / Spill emergency number: +27 86 044 4411 (Hazcall24 / Client: Villa Crop Protection).

RESISTANCE WARNING

VAPAM is a group code Z herbicide, a group code M3 fungicide, a group code 8F insecticide and nematicide group N-UNX. Any weed/fungus/insect/nematode population may contain individuals naturally resistant to **VAPAM** and other group code Z herbicides/group code M3 fungicides/group code 8F insecticides and nematicide group N-UNX. The resistant individuals can eventually dominate the weed/fungus/insect/nematode population if these herbicides/fungicides/insecticides/nematicides are used repeatedly. These resistant weeds/fungi/insects/nematodes may not be controlled by **VAPAM** or any other group code Z herbicide/group code M3 fungicide/group code 8F insecticide and nematicide group N-UNX.

To delay resistance:

- avoid exclusive repeated use of herbicides/fungicides/insecticides/nematicides from the same herbicide/fungicide/insecticide/nematicide group code. Alternate or tank mix with products from different herbicide/fungicide/insecticide/nematicide group codes,
- for tank mixing or alternation with products in fungicide group code M, refer to applicable individual product labels,
- integrate other control methods (chemical, cultural, biological) into weeds control programmes.

For specific information on resistance management contact the registration holder of this product.

Mode of Action: Soil fumigant, acting by decomposition to methyl isothiocyanate.

DIRECTIONS FOR USE: Use only as directed.

NOTICE TO USER:

Read the entire label before application. This agricultural remedy is to be used only in accordance with the instructions on the label. It is an offence under the Act to use this agricultural remedy for any purpose in a manner contrary with the directions on the label.

- **VAPAM** is a water-soluble soil fumigant and can be easily applied by drenching infected soils.
- Small areas and planting media can be treated by using a watering can, while large areas can be treated using sprinkler irrigation or soil injection.

SOIL PREPARATION: PRE-APPLICATION PROCEDURE

- Cultivate the soil thoroughly to a depth of 50 cm, breaking up all large clods, to ensure a well-prepared, fine tilth surface.
- Remove plant matter that is not decomposed.
- Application should be performed under “good seedbed moisture conditions”, i.e. the soil moisture should be about 60 to 80 % of field capacity.
- Bring soil moisture up to just below field capacity (60 to 80 %), 2 to 3 weeks prior to application. Keep soil moist prior to application.
- This increases the sensitivity of weed seeds and improves penetration.

APPLICATION: USES

Rate of application:

- Use 500 to 1000 litres **VAPAM** per hectare depending on crop target, pest and soil type.
- Soil properties to consider when determining the application rate, include the depth of soil to be treated, soil texture and percentage organic matter.
- To ensure good penetration of **VAPAM**, apply with sufficient water, to moisten the soil to the required depth.

Target pest and depth of treatment:

- For control of **weeds and fungi** causing seed or seedling diseases, treatment of only the top 5 to 10 cm of soil may be required.
- For control of **nematodes and fungi**, which occur throughout the rhizosphere, treatment to depths greater than 10 cm may be required.
- For a given soil type, the required application rate will increase proportionally with the depth of the treatment.

NOTE

VAPAM will only control those pests in the fumigation zone at treatment. Recontamination may occur subsequent to the dissipation of the fumigant from the soil.

Organic matter in the soil:

Except in the case of cover crops, plant material below the soil surface should be thoroughly decomposed, before **VAPAM** is applied. Because of the absorbing effect of humus, soils with high level of organic matter below the surface, require higher than usual doses of **VAPAM**.

Time of application:

- **VAPAM** is applied after harvest and 14 to 21 days before a new crop is planted (refer to “**PRE-PLANT PROCEDURE**”).
- Do not apply **VAPAM** at soil temperatures lower than 10 °C (at 10 to 15 cm depth).
- For best results apply at soil temperatures between 10 to 25 °C.
- Sub-optimal efficacy of **VAPAM** may occur on turf soils, due to insufficient water penetration and soils with high organic matter content (high absorption coefficient).

METHODS OF APPLICATION**A. Sprinkler system:**

Refer to “**PRE-APPLICATION PROCEDURE**” to prepare the soil.

- Inject the required amount of **VAPAM** into the system via a metering pump.
- Sufficient water should be applied with **VAPAM** to ensure that the product reaches the desired treatment level and distribution is even.
- Application should only be performed directly from the hydrant, and non-return valves must be used.
- Ensure injection of **VAPAM** occurs over the full irrigation period.
- Only apply under conditions that ensure even distribution over the treated area.
- Careful supervision is essential throughout the entire application period.
- Keep the treated area moist by applying follow-up irrigation for 1 week after treatment.
- Plastic sheeting is recommended on light sandy soils (< 5 % clay) where surface sealing with follow-up irrigation is difficult to obtain and sub-optimal efficacy may result.
- After application, flush the entire system for 10 to 15 minutes with clean fresh water.
- Refer to “**POST APPLICATION PROCEDURE**” and “**PRE-PLANT PROCEDURE**”.

B. Soil injection:

Refer to “**PRE-APPLICATION PROCEDURE**” to prepare the soil.

- Soil injection can be used to treat entire fields in a broadcast type application, or it can be used to treat fields in bands.
- **VAPAM** can be injected into prepared plant beds using chisel or shank-type injections.
- The soil must be sealed immediately after use.
- Refer to “**POST APPLICATION PROCEDURE**” and “**PRE-PLANT PROCEDURE**”.

C. Small surfaces and planting media (e.g. seedbeds):

Refer to “**PRE-APPLICATION PROCEDURE**” to prepare the soil.

- Small surfaces and seedbeds can best be treated by means of a watering can.
- Make up seedbeds prior to treatment. Drench the soil thoroughly with the required amount of **VAPAM** in a minimum of 10 litres water per 10 m².
- Preferably treat the total area to minimize contamination from untreated areas. Adhere strictly to “**DIRECTIONS FOR USE**” on soil preparation.
- Planting media should be moistened with the **VAPAM** solution using a watering can whilst mixing continuously.
- Refer to “**POST APPLICATION PROCEDURE**” and “**PRE-PLANT PROCEDURE**”.

D. Planting hole treatment:

Refer to “**PRE-APPLICATION PROCEDURE**”.

- Prepare a dam around the plant hole (approx. 1 m x 1 m), with a wall of 10 cm in height.
- Half fill the dam with water and then apply the required amount of **VAPAM** over the surface.
- Fill up immediately to full capacity with water.
- Refer to “**POST APPLICATION PROCEDURE**” and “**PRE-PLANT PROCEDURE**”.

E. Growing media and potting soil:

- Media should be moistened with the **VAPAM** solution using a watering can whilst mixing continuously.
- The use of a cement mixer is ideal for this purpose.
- Apply 700 to 900 ml **VAPAM** per m³ soil, in 30 to 50 litres water.
- Cover the treated soil with a plastic sheet to prevent gasses from escaping.
- Remove the cover after 3 days.
- **Refer to “PRE-PLANT PROCEDURE”.**

POST APPLICATION PROCEDURE

To obtain optimum efficacy, the surface of the treated area must be sealed, to prevent the gas from escaping either by:

- (i) **Drench:** Irrigate the treated surface with 4 to 5 mm of water approximately two hours after treatment. Repeat in dry conditions. Keep the area moist with follow-up irrigation for 1 week after treatment.
- (ii) **Cover:** On smaller areas, tarpaulins or a plastic sheet can be used to seal the soil surface, which can be removed. The cover need not be tented. Remove cover after 3 days.

PRE-PLANT PROCEDURE

- Because **VAPAM** is harmful to living plants, a minimum interval must be observed between soil fumigation and planting.
- Soil temperatures influence the evaporation rate of **VAPAM**. On light soils at temperatures of 15 °C and above, planting can begin at 14 to 21 days after treatment. At temperatures below 15 °C, a waiting period of 21 to 28 days is recommended.
- Soils with a high clay content and/or high organic fraction or those that are saturated, will retain the fumigant and require a longer waiting period.
- Cultivate the soil prior to planting in order to aerate the soil thoroughly.
- In order to ensure that the complete escape of **VAPAM** has taken place, transplant a radish or tomato seedling into the treated soil. If the plant develops normally without signs of chemical injury, crop planting can begin. **Refer to “Germination Test”.**

Germination Test:

1. Take soil samples from both fumigated and untreated areas at depths of 10 cm and 15 cm. Remove and discard top surface soil. Half fill a transparent container with the soil and close immediately.
 2. Place cress seeds on moist filter paper or cotton pads and place on top of the soil in the container. Close the container and place near a window at room temperature.
 3. Check 24 to 48 hours later for germination. Only if seeds have germinated on both untreated as well as fumigated soils, is the area ready for use.
- **Ensure that the treated area is ready for use by conducting the germination test.**
 - Prevent re-infestation of treated soil by using clean uninfected plant material, irrigation water and equipment.

APPLICATION RATES

<i>Use</i>	<i>Dosage</i>	<i>Pests controlled</i>
<u>Fungicide</u>	650 to 900 ℓ / ha (65 to 90 $m\ell$ / m ²) Rate is dependent on infestation level and target spectrum	<u>Soil fungi:</u> <i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> (Damping off), <i>Sclerotium cepivorum</i> (White bulb rot), <i>Pyrenochaeta terrestris</i> (Pink root).
<u>Nematicide / Insecticide</u>	650 to 900 ℓ / ha (65 to 90 $m\ell$ / m ²) Rate is dependent on infestation level and target spectrum	<u>Nematodes:</u> <i>Meloidogyne</i> spp. (Root knot), <i>Pratylenchus</i> spp. (Lesion), <i>Heterodera</i> spp. (Cyst), <i>Trichodorus</i> spp. (Stubby). <u>NOTE</u> <i>Meloidogyne chitwoodi</i> and <i>Meloidogyne fallax</i> will not be controlled.

Use	Dosage	Pests controlled
<u>Herbicide</u>	<p>650 to 900 ℓ / ha (65 to 90 $\text{m}\ell$ / m^2)</p> <p>Rate is dependent on infestation level and target spectrum</p>	<p><u>Weeds:</u> <u>Broadleaf:</u> <i>Amaranthus</i> spp. (Pigweed), <i>Portulaca</i> spp. (Purslane), <i>Datura stramonium</i> and <i>D. ferox</i>, (Thorn apple), <i>Capsella bursa-pastoris</i> (Shepherd's purse), <i>Oxalis latifolia</i> (Red garden sorrel), <i>Stellaria media</i> (Chickweed), <i>Tagetes minuta</i> (Khaki weed),</p> <p><u>Grasses:</u> Including Annual grasses: <i>Eleusine indica</i> (Goose grass), <i>Panicum schinzii</i> (Buffalo grass), <i>Cyperus esculentus</i> (Yellow nutsedge)</p> <p><u>Lawns and Turf renovation:</u> VAPAM will also control <i>Cynodon dactylon</i> (Common couch) and <i>Pennisetum clandestinum</i> (Kikuyu).</p>