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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



OFFICE OF
PREVENTION, PESTICIDES, AND
TOXIC SUBSTANCES

Mr. Gregg Starr
Great Lakes Chemical Corporation
P. O Box 2200
West Lafayette, IN 47996-2200

MAR 13 2002

Subject: Terr-O-Gas 50
EPA Registration Number 5785-48
Your submission of 11/12/01

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable provided the following revisions are made:

1. Under "AIR CONCENTRATION LEVEL," please change M³ in the concentration level of methyl bromide to read 5 ppm (20 mg/m³).
2. Delete the third sentence under "Storage and Handling." Add the following sentence immediately under the heading "STORAGE, HANDLING AND DISPOSAL": "Do not contaminate water, food or feed by storage and disposal."

A stamped copy of the label is enclosed for your records. Please submit one (1) copy of your final printed labeling before you release the product for shipment.

If you have any questions or concerns, please call Myrta R. Christian at (703)305-0598.

Sincerely,

Mary L. Waller
Product Manager (21)
Fungicide Branch
Registration Division (7505C)

Enclosure

**RESTRICTED USE PESTICIDE
DUE TO ACUTE TOXICITY**

For retail sale to and use only by Certified Applicators or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

TERR-O-GAS® 50

PREPLANT SOIL FUMIGANT

ACTIVE INGREDIENTS: _____ By Wt.
Methyl bromide _____ 50%
Chloropicrin _____ 50%
TOTAL _____ 100%

This product weighs 14.1 pounds per gallon.



DANGER • PELIGRO • POISON



KEEP OUT OF REACH OF CHILDREN

Si Usted no entiende la etiqueta, busque a alguien para que se la explique a Usted en detalle. (If you do not understand the label, find someone to explain it to you in detail).

FIRST AID	
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. Keep warm. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Do not give anything by mouth to an unconscious person. If <u>not unconscious</u>, rinse mouth out with water. • In all cases of overexposure, get medical attention immediately. Take person to a doctor or emergency treatment facility.
If on skin or clothing	<ul style="list-style-type: none"> • Immediately remove contaminated clothing, shoes, and any other item on skin. • Rinse skin immediately with plenty of water for 15-20 minutes. • In all cases of overexposure, get medical attention immediately. Take person to a doctor or emergency treatment facility.
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • In all cases of overexposure, get medical attention immediately. Take person to a doctor or emergency treatment facility.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-949-5167 for emergency treatment information.	
NOTE TO PHYSICIAN	
Early symptoms of overexposure are dizziness, headache, nausea and vomiting, weakness and collapse. Lung edema may develop in 2 to 48 hours after exposure, accompanied by cardiac irregularities; these effects are the usual cause of death. Repeated overexposures can result in blurred vision, staggering gait and mental imbalance, with probable recovery after a period of no exposure. Blood bromide levels suggest the occurrence, but not the degree, of exposure. Treatment is symptomatic.	

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS**

DANGER. Extremely hazardous liquid and vapor under pressure. Do not breathe vapor. Inhalation may be fatal or cause serious acute illness or delayed lung or nervous system injury. Liquid or vapor can cause serious skin or eye injury which may have a delayed onset. Do not get liquid on skin, in eyes or on clothing.

This product contains chloropicrin which may be irritating to the upper respiratory tract, and may cause painful irritation to the eyes, producing watering. If these symptoms occur, leave the fumigation area immediately.

AIR CONCENTRATION LEVEL

The acceptable air concentration level for persons exposed to chloropicrin is 0.1 ppm (0.7 mg/m³). The acceptable air concentration level for persons exposed to methyl bromide is 5 ppm (20 mg/m³). The air concentration level is measured by a direct reading detection device, such as a Matheson-Kitagawa.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear: Loose-fitting or well ventilated long-sleeved shirt and long pants. Shoes and socks. Full-face shield or safety glasses with brow and temple shields when handling the liquid product (Do NOT wear goggles).

When the air concentration level is above 0.1 ppm for chloropicrin OR above 5 ppm for methyl bromide and a respirator is required, protect the eyes by wearing a full-face respirator.

No respirator is required if the air concentration level of chloropicrin in the working area is measured to be less than 0.1 ppm AND the air concentration level of methyl bromide in the working area is measured to be less than 5 ppm.

A respirator is required if the acceptable air concentration level of 0.1 ppm for chloropicrin OR 5 ppm for methyl bromide is exceeded at any time. The respirator must be one of the following types: (a) a supplied-air respirator (MSHA/NIOSH approval number prefix TC-19C) (b) A self-contained breathing apparatus (SCBA) (MSHA/NIOSH approval number prefix TC-13F).

Under normal soil fumigation conditions, the air concentration level of chloropicrin in the working area will not generally exceed 0.1 ppm AND the air concentration level of methyl bromide in the working area will not generally exceed 5 ppm. Therefore, no respiratory protection is required. However, there is the possibility of a spill or leak during soil fumigation. Therefore, a respirator of a type specified above must be available and will be required for entry into an affected area in the event of a leak or spill.

WORK SAFETY REQUIREMENTS

1. Do not wear jewelry, gloves, goggles, tight clothing, rubber protective clothing, or rubber boots when handling. Methyl bromide and chloropicrin are heavier than air and can be trapped inside clothing and cause skin injury.
2. If liquid fumigant splashes or spills on clothing, remove them at once, as fumes will be an intolerable source of irritation.
3. Immediately after contamination remove outer clothing, shoes, and socks and do not reuse until thoroughly aerated or ventilated. Keep such clothing and shoes outdoors until thoroughly aerated. Then follow the PPE manufacturers instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE and work clothing separately from other laundry.
4. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them.
5. Follow PPE manufacturer's instructions for cleaning/maintaining protective eyewear and respirators.

USER SAFETY RECOMMENDATIONS

Users should:
 * Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
 * Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
 * Remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This product is toxic to fish and wildlife. Keep out of lakes, streams and ponds. Do not contaminate water by cleaning of equipment or disposal of wastes.

PHYSICAL AND CHEMICAL HAZARDS

Contents under pressure. Do not use or store near heat or open flame. In fires fueled by other materials, Terr-O-Gas 50 may liberate hazardous gases. The use of Terr-O-Gas 50 with aluminum, magnesium, zinc and alkali metals will result in the liberation of toxic gases, and possible fire and explosion. In addition, severe corrosion of containers and equipment made of these metals will occur.

DIRECTIONS FOR USE

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

This fumigant is a highly hazardous material and should be used only by individuals trained in its proper use. Before using, read and follow all label precautions and directions.



P.O. BOX 2200
WEST LAFAYETTE, IN 47996-2200
U.S.A.

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All persons working with this fumigant must be knowledgeable about the hazards, and trained in the use of required respiratory equipment and detector devices, emergency procedures, and proper use of the fumigant.

STORAGE, HANDLING, AND DISPOSAL

Storage and Handling. Store in a secure manner either outdoors under ambient conditions or indoors in a well ventilated area. Post as a pesticide storage area. Do not contaminate water, food or feed by storage. Store cylinders upright, secured to a rack or wall to prevent tipping. Containers should not be subjected to rough handling or mechanical shock such as dropping, bumping, dragging or sliding. Do not use rope slings, hooks, tongs or similar devices to unload cylinders. Transport cylinders using hand truck, fork truck or other device to which cylinders can be firmly secured. Do not remove valve protection bonnet and safety cap until immediately before use. Replace safety cap and valve protection bonnet when cylinder is not in use. When cylinder is empty, close valves, screw safety caps on to valve outlets, and replace protection bonnet before returning to shipper. Only the registrant, or his designee, is authorized to refill cylinders. Do not use cylinders for any other purpose.

Disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. Return empty cylinders freight collect to the Great Lakes Chemical Corporation location from which shipment was made. Return partial cylinders only after consulting Great Lakes Chemical Corporation for proper shipping instructions. In either case, use delivering carrier when possible.

SPILL AND LEAK PROCEDURES FOR SOIL FUMIGATION.

In case of a rupture of hose or fitting while applying fumigant, immediately stop tractor and motor. Evacuate everyone from the immediate area of the spill or leak. Wear the personal protective equipment (including prescribed respirators) specified in the Hazards to Humans section of this labeling for entry into affected area to correct problem. Approach from upwind to make necessary repairs. Do not enter area without the required PPE until the spill has evaporated or the leak has been fixed.

Contaminated soil, water and other cleanup debris is a toxic hazardous waste. Report spill to the National Response Center (800-424-9802) if the reportable quantity of 1000 pounds is exceeded.

PLACARDING OF FUMIGATED AREAS

The applicator (or supervisor of the application) must placard all entrances to the fumigated area with signs bearing:

- * skull and crossbones symbol
- * "DANGER/PELIGRO,"
- * "Area under fumigation, DO NOT ENTER/NO ENTRE,"
- * "Methyl Bromide and Chloropicrin Fumigants in use,"
- * the date and time of fumigation, and
- * name, address, and telephone number of the applicator.

Do not allow entry by unprotected persons into the fumigated area until the signs are removed. Such signs must only be removed when the air concentration level of chloropicrin is measured to be less than 0.1 ppm AND the air concentration level of methyl bromide is measured to be less than 5 ppm. Signs must remain legible during entire posting period.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements in this labeling about personal protective equipment, restricted-entry intervals, and notification to workers. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard (WPS).

No instructions elsewhere on this labeling relieve users from complying with the requirements of the WPS.

ENTRY RESTRICTIONS:

Greenhouse Soil Fumigation: Entry (including early entry that would otherwise be permitted under the WPS) by any person -- other than a correctly trained and equipped handler who is performing a handling task permitted by the WPS -- is **PROHIBITED** in the entire greenhouse (entire enclosed structure/building) from the start of application until 48 hours after application AND until the air concentration level of chloropicrin in the working area is measured to be less than 0.1 ppm AND the air concentration level of methyl bromide in the working area is measured to be less than 5 ppm. Until the aeration of the soil is complete (usually 10-14 days), non-handlers are permitted in the greenhouse ONLY while the air concentration level of chloropicrin in their working area remains less than 0.1 ppm AND the air concentration level of methyl bromide in their working area remains less than 5 ppm. If tarps are used for the application, non-handler entry is prohibited during tarp removal and until the air concentration level of chloropicrin in the working area is measured to be less than 0.1 ppm AND the air concentration level of methyl bromide in the working area is measured to be less than 5 ppm.

Outdoor Soil Fumigation: Entry (including early entry that would otherwise be permitted under the WPS) by any person -- other than a correctly trained and equipped handler who is performing a handling task permitted on this labeling -- is **PROHIBITED** from the start of application until 48 hours after application. In addition, if tarps are used for the application, non-handler entry is prohibited while tarps are being removed.

NOTIFICATION: Notify workers of the application by warning them orally and by posting fumigant warning signs, as described in the "Placarding of Fumigated Areas" section of this labeling. Post the fumigant warning sign instead of the WPS sign for this application, but follow all WPS requirements pertaining to location, legibility, size, and timing of posting and removal.

Greenhouses -- Soil Fumigation: Post the fumigant warning signs outside all entrances to the entire greenhouse (entire enclosed structure/building).

Outdoor Soil Fumigation: Post the fumigant warning signs at entrances to treated areas.

PPE FOR ENTRY DURING THE ENTRY-RESTRICTED PERIOD:

PPE for entry that is permitted by this labeling is listed in the "Hazards to Humans and Domestic Animals" section of this labeling.

SOIL FUMIGATION DIRECTIONS. Terr-O-Gas 50 may be used only for soil fumigation. The following precautionary procedures must be followed.

PRECAUTIONARY STATEMENTS. The following precautions must be followed PRIOR to soil fumigation.

- Comply with all local regulations and ordinances. Obtain an application permit from agricultural regulatory agencies as required.
- Never fumigate alone. It is imperative to always have an assistant present and proper protective equipment available in case of accidents.
- Persons in charge of all operations must advise other workers of all safety precautions and procedures. In addition, they must instruct their helpers in the mechanical operation of the equipment.
- Handle this fumigant in the open, with the operator "upwind" from the container where there is good ventilation.
- Check fumigant delivery system for leaks before beginning operation. Two trained persons must be present during introduction of the fumigant.
- When fumigating soil from a tractor, 5 gallons of water must be carried on the tractor and placed where it is readily accessible. In addition to water available on the tractor, at least 5 gallons of additional water must be available from the service truck. This water must be potable and in containers marked "Decontamination water, not to be used for drinking".
- All trash should be cleaned from the field before starting fumigation.
- Post all treated areas with warning signs.

The following precautions must be followed DURING the soil fumigation operation.

- Two trained persons must be present during introduction of the fumigant.
- Do not make application of this fumigant when there is little or no air movement or when there is an atmospheric inversion.
- Do not lift injection shanks to turn at the end of a pass until fumigant has been purged or drained from system following closure of shutoff valve.
- If trash is inadvertently pulled up by the shanks when fumigating, it must be covered with polyethylene film.
- When changing the cylinders, be certain they are turned off and fumigant system is not under pressure.

The following precautions must be followed AFTER soil fumigation.

- Keep pets, livestock, and other domestic animals out of the treated area during application, during the exposure period as specified for applications in the Directions for Use, and during removal of tarpaulin.
- Two trained persons must be present during removal of the tarpaulin.

APPLICATION METHODS. Terr-O-Gas 50 is to be used only as a preplant soil fumigant.

A. Tarpaulin Methods for Field, Nursery, Turf, Greenhouse, and Seed or Transplant Bed Soils.

Pests controlled when present in soil at time of treatment:

Plant-parasitic nematodes, including root-knot, root lesion (meadow), cyst, citrus, burrowing, false root-knot, lance, spiral, ring, sting, stubby root, dagger, awl, sheath and stunt (stylet).

Soil-borne disease causing organisms, including the fungi *Pythium*, *Rhizoctonia*, *Phytophthora*, *Pyrenochaeta*, *Sclerotinia*, *Sclerotium*, and *Fusarium* and the clubroot organism *Plasmodiophora*.

Weeds, including broadleaf weeds such as broomrape and lambsquarters and grasses such as bermudagrass, annual bluegrass, torpedograss and quackgrass. Not effective against hard seed weeds, such as mallow, dodder, morningglory, and certain leguminous weeds.

Insects, including wireworms, cutworms, grubs, rootworms, ants and garden symphylans.

NOTE: Fumigation may temporarily reduce nitrification in the soil thus increasing levels of ammonium nitrogen and soluble ammonium salts to potentially phytotoxic levels. Accumulation of ammonium is most likely to occur when maximum rates of fumigant and fertilizer are applied to soils that are acidic, wet, cold or high in organic matter. Apply only fertilizer containing at least 30% nitrate until the crop is well established and soil temperature is above 65°F., then fertilize as indicated by soil test. Acid soils should be limed before fumigation to stimulate nitrification and to reduce possible ammonium toxicity.

Pretreatment Soil Preparation. Plow, rip or otherwise till the soil to the depth to which effective treatment is required. The soil should be worked until free of clods or large lumps. Residue from previous crops should be worked into the soil to allow for decomposition prior to fumigation. Soil moisture should be adequate for seed germination. Coarse textured soils can be fumigated with higher moisture content than fine textured soils. For best results, soil should be kept moist for at least four days prior to treatment. Do not fumigate if the soil temperature is below 50°F. For best results, fumigate when soil temperature is 60°F to 80°F at the depth of 6 inches.

1. Overall Application. Inject Terr-O-Gas 50 with a chisel type applicator having the chisels spaced no more than 12 inches apart and injecting the fumigant to a depth of 6-8 inches below the soil surface. The soil surface must be covered with polyethylene film immediately after treatment with simultaneous film laying equipment or by sealing with a roller or cultipacker and covered within 20 minutes with polyethylene film or other suitable cover. Consult dosage rate table for proper rates of application and exposure periods. At the end of the exposure period, remove tarpaulins and aerate for two weeks before introducing transplants or vegetative plant parts. Crop seeds may be planted after 96 hours following end of exposure period.

2. Row or Bed Application. Apply the broadcast rate to the area actually treated, i.e., the area delimited by the film mulch. Consult the dosage rate table for treatment rates.

Use one or more shanks per bed spaced not more than 12 inches apart, depending on the area to be treated. Inject the fumigant 6-8 inches below the surface of the bed and simultaneously cover with polyethylene film or other suitable cover. At the end of the exposure period, remove tarpaulins and aerate for two weeks before introducing transplants or vegetative plant parts. Crop seeds may be planted after 96 hours following the end of exposure period. Where polyethylene film is to be utilized as a mulch, aeration is accomplished by making holes in the film on spacings appropriate for the crop to be planted.

B. Special Instructions for Florida Citrus. Preplant or replant fumigation of citrus soil for control of *Phytophthora* and citrus nematodes in Florida sandy soils. Trees which are planted in this treated soil will not bear harvestable fruit for a period of at least 24 months. Apply with chisels spaced 12 inches apart to a depth of 6-8 inches and seal immediately with 4 mil polyethylene film. Apply Terr-O-Gas 50 at the rate of 2 pounds per 100 square feet. Expose to fumigation for 96 hours. This treatment will control disease to a depth of 4 feet. Remove cover and aerate for two weeks before setting transplants in treated soil.

C. Special Instructions for Greenhouse Soil Fumigation. The use of methyl bromide and chloropicrin in confined spaces presents a potential hazard to humans and plant life. Special precautions must be taken in order that these potential hazards be minimized. It is the responsibility of the individual supervising the fumigation operation to see that all safety precautions are strictly observed. Before the fumigation operation commences, the supervisor of the fumigation job shall have conducted proper training of all personnel involved in the fumigation (includes use of safety equipment), removed all persons from the area not directly involved in the fumigation, and inspected the equipment to ensure proper application.

Two persons trained in the use of this product must be present during introduction of the fumigant, initiation of aeration, and after aeration when testing for reentry. Two persons do not need to be present if monitoring is conducted remotely (outside the area being fumigated).

Application of Terr-O-Gas 50 to greenhouse soils is by the same methods as for field soils (see Sections A.1. and A.2. above). Consult dosage rate table for proper rates of application and exposure periods. If a wind is blowing, all injection should be made upwind from a previous injection site. Immediately after injection of the fumigant and tarping, a qualified person, wearing respiratory protective equipment, should monitor the tarped area with a halide detector. If excessive leaks are found, seal the source of the leak immediately.

On-Site Protective Equipment: Although this fumigant contains chloropicrin, the absence of chloropicrin does not always indicate the absence of methyl bromide. Do not allow any person to enter the fumigated structure without the appropriate protective equipment from the time of injection of the fumigant until acceptable air concentration level readings are obtained using an approved detector. To maintain adequate safety standards, the following equipment must be present and accessible on the site during the entire fumigation operation: (1) one or more self-contained breathing apparatus; (2) one or more replacement air bottles per breathing apparatus; and (3) one or more halide leak detectors.

During Fumigation: The exposure time should be as specified in the application's directions for use.

After Fumigation: At the end of the exposure period, remove all seals and open all doors and windows that are operational. Allow for complete ventilation. Use ventilation fans whenever possible to remove fumigant from dead air pockets. Follow exactly the instructions in the entry restriction section of the Agricultural-Use Requirements box.

Dosage Rate Table		
Treatment Site	Rate* and Method*	Exposure time
Field Soil to be Planted to: Asparagus, broccoli, cauliflower, eggplants, lettuce, muskmelons, onions [dry bulb], peppers, pineapples, strawberries, tomatoes Florida Citrus ^c	360-480 lb/A 2 lb/100 ft ²	24-48 hr 96 hr
Nursery & Greenhouse Soils, Seed & Transplant Beds & Turf: Non-food crops Tobacco Tomato [Greenhouse crops]	360-870 lb/A 2 lb/100 ft ² 360-480 lb/A	24-48 hr 24-48 hr 24-48 hr

*Use higher rates indicated for muck and heavy clay soils.
^aMethod of application is by injection with chisels plus covered with tarpaulin.
^cMay not bear harvestable fruit within 24 months.

STATEMENT OF WARRANTY AND LIABILITY

Seller warrants that this product complies with the specifications expressed in this label. SELLER MAKES NO OTHER WARRANTIES; AND DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR THE INTENDED PURPOSE. Seller's liability for default, breach, or failure under this label shall be limited to the amount of the purchase price. Seller shall have no liability for consequential damages.

Many pesticidal chemicals are poisonous and may leave a toxic residue on the plants to which they are applied. The U.S. Environmental Protection Agency has established maximum amounts of such pesticidal chemicals that may remain on raw agricultural products at harvest, and it is the user's responsibility to see that there is no residue on such crops at harvest in excess of these amounts. The "Directions for Use" are based on the best available information, and if followed carefully should not leave excessive residues at harvest. However, Great Lakes Chemical Corporation assumes no responsibility as to their accuracy nor for any loss due to excessive residues.

EPA REG. NO. 5785-48
EPA EST. NO. 5785-AR-01

NET WEIGHT _____ LBS.
LOT NUMBER _____

TOG50-1 REV.AR-48-M

THIS LABEL MUST BE ACCOMPANIED BY A POISON GAS LABEL.

**ACCEPTED
with COMMENTS
In EPA Letter Dated:**

MAR 13 2002

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

5785-48

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