



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

Christine Dively  
Certis USA, L.L.C.  
9145 Guilford Road, Suite 175  
Columbia, MD 21046

SEP 17 2008

**RE: Amendment Dated 5/22/2008**  
**Basamid G Soil Fumigant**  
**EPA Reg. No. 70051-101**

Dear Ms. Dively,

The amendment referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, to clarify use directions, is acceptable providing you submit a final printed label within 45 days from the date of this letter, which makes the following change:

1. On Page 2, first sentence in paragraph one, please add "or" between container label.
2. On Page 2, "Personal Protective Equipment," third paragraph, please add heading in Bold text, "User Safety Requirements", and revise statement to read as follows:  
  
"Follow manufacturer's instructions for cleaning/maintaining PPE. If not such instructions exists for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not re-use them." In addition, place text in box.
3. On Page 2, "User Safety Recommendations," second bullet, please revise statement to read "clothing/PPE" immediately if pesticide.....
4. On Page 2, "Environmental Hazards," third sentence, please delete "Do not apply where runoff is likely to occur." For the fourth sentence, please remove the "s" from washwater, and add "or rinsate."
5. On Page 3, "Storage and Disposal," please refer to PR Notice 83-3 and adopt language from "Paper and Plastic Bags" for the "Container Disposal" statement to read as follows:

"Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay

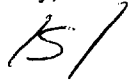
out of smoke.” Also please move to the end of the “Direction for Use” prior to the “Warranty Statement.”

6. On Page 13, “Warranty” the label language should read as follows:

“TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, CERTIS DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, CERTIS, MANUFACTURER, AND SELLER DISCLAIM AND SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE, HANDLING, APPLICATION, STORAGE, OR DISPOSAL OF THIS PRODUCT OR FOR DAMAGES IN THE NATURE OF PENALTIES, AND THE USER AND BUYER WAIVE ANY RIGHT THAT THEY MAY HAVE TO SUCH DAMAGES. NO AGENT, REPRESENTATIVE OR EMPLOYEE OF CERTIS IS AUTHORIZED TO MAKE ANY WARRANTY, GUARANTEE OR REPRESENTATION BEYOND THOSE CONTAINED HEREIN OR TO MODIFY THE WARRANTIES CONTAINED HEREIN. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE TOTAL LIABILITY OF CERTIS, MANUFACTURER, AND SELLER, SHALL BE LIMITED TO THE PURCHASE PRICE PAID, OR AT CERTIS’ ELECTION, THE REPLACEMENT OF THE PRODUCT.”

Attach a copy of this letter with your final printed label. Enclosed please find a copy of the label stamped “Accepted with Comments”. If you have questions concerning this letter, please contact Shaunta Hill at 703- 347-8961 or myself at 703-308-3194.

Sincerely,



Shaja B. Joyner  
Product Manager, Team 20  
Fungicide Branch  
Registration Division (7505P)

3/16

# Basamid®G

## SOIL FUMIGANT

For pre-planting control of most weeds, nematodes, and soil diseases of turfgrass and ornamental plants and strawberries and tomatoes (California Only)

**ACTIVE INGREDIENT:**  
 Dazomet (Tetrahydro-3,5,-dimethyl-2H-1,3,5-thiadiazine-2-thione)..... 99.0%  
**OTHER INGREDIENTS** ..... 1.0%  
**TOTAL** ..... 100.0%

**Net Contents:**  
 50-pound bag (22.68 kilograms)  
 EPA Reg. No. 70051-101  
 EPA Est. No. 39578-TX-1  
**Lot Number:**

**KEEP OUT OF REACH OF CHILDREN  
 WARNING/AVISO**

Manufactured for  
 Certis USA, L.L.C.  
 9145 Guilford Road  
 Suite 175  
 Columbia, MD 21046

# CERTIS

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

See inside booklet for complete Precautionary Statements, Directions For Use, Statement of Practical Treatment, and Warranty.

### PRECAUTIONARY STATEMENTS

#### Hazards to Humans and Domestic Animals

**WARNING.** May be fatal if swallowed. Do not breathe vapor or dust. Do not get in eyes, on skin, or on clothing. Prolonged exposure may cause irritation to skin, eyes, and mucous membranes. The gases released during the degradation of this product in the soil are irritating to the skin, eyes, and mucous membranes. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

**FIRST AID**

**If inhaled:**

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.
- Call a poison control center or doctor for further treatment advice.

**If on skin or clothing:**

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

**If in eyes:**

- 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.
- Call a poison control center or doctor for treatment advice.

**If swallowed:**

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by the poison control center doctor.
- Do not give anything by mouth to an unconscious person.

**HOT LINE NUMBER**

**ACCEPTED  
with COMMENTS  
In EPA Letter Dated**

**SEP 17 2008**

**Under the Federal Insecticide,  
Fungicide, and Rodenticide Act  
as amended, for the pesticide  
registered under EPA Reg. No.  
70051-101**

4/16

Have the product container label with you when calling a poison control center or doctor or going for treatment. You may also contact Certis USA, L.L.C. for emergency medical treatment: 1-800-255-3924

### Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants
- Chemical-resistant footwear plus socks
- Chemical resistant gloves made of any waterproof material.

**In greenhouses and other enclosed areas:** respirator with an organic-vapor removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G), or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any R, P, or HE prefilter.

Wash thoroughly with soap and water after handling. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not re-use them. Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### 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. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### Environmental Hazards

This product is toxic to fish. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply where runoff is likely to occur. Do not contaminate the water when disposing of equipment washwaters.

### Endangered Species Concerns

The use of any pesticide in a manner that may kill or otherwise harm an endangered species or adversely modify their habitat is a violation of federal law.

## 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.

All applicable directions, restrictions, precautions and **WARRANTY** are to be followed. This labeling must be in the user's possession during application.

### 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, notification to workers, and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard (WPS).

### Agricultural Use Requirements, continued

#### Entry Restrictions

**Greenhouses:** 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 WPS-defined handling task - is PROHIBITED in the entire greenhouse (entire enclosed building/structure) from the start of application until **24 hours** after application AND until one of the WPS ventilation criteria for air exchanges, mechanical ventilation, or passive ventilation has been met. In addition, if tarps are used for the application, non-handler entry is prohibited while tarps are being removed and until one of the WPS ventilation criteria has been met.

**Outdoors:** 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 WPS-defined handling task — is PROHIBITED from the start of application until **24 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. The signs must bear the skull and cross bones symbol and state (1) "**DANGER/ PELIGRO**," (2) "DO NOT ENTER/ NO ENTRE," (3) the date and time of fumigation, (4) "Basamid® G Fumigant in use," and (5) name, address, and telephone number of the applicator. 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:** Post the fumigant warning signs outside all entrances to the greenhouse.

**Outdoors:** Post the fumigant warning signs at entrances to treated areas.

**PPE FOR ENTRY DURING THE ENTRY-RESTRICTED PERIOD:** PPE for handler entry that is permitted by the WPS is listed in the **Hazards to Humans and Domestic Animals** section of this labeling.

### Storage and Disposal

Do not contaminate water, food, or feed by storage or disposal.

**Pesticide Storage:** Store this product in a dry, cool place below 95° F (35° C) — it will decompose at higher temperatures. This material reacts nonviolently with moisture, releasing fumigant vapors. Keep the container tightly sealed when not in use. Do not re-use the empty container. Keep this product and its vapors away from desirable plants, seeds, fertilizers, insecticides, and other agricultural chemicals as plant injury or loss may result from contamination.

**Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or an approved waste disposal facility.

#### Container Disposal:

- **Plastic Containers:**

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

#### In Case of Emergency

In case of large-scale spillage regarding this product, call:

CHEMTEL 800-424-9300 • 800-255-3924

Certis USA, L.L.C. 800-250-5024

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment.
- Your local poison control center (hospital).
- Certis USA, L.L.C. 800-250-5024

**Steps to be taken in case material is released:** Keep the spill out of all sewers and open bodies of water. Remove contaminated clothing, and wash affected skin areas with soap and water. Wash clothing before re-use.

## GENERAL INFORMATION

### Summary of Uses

Basamid® G soil fumigant is intended for pre-planting control of most weeds, nematodes, and soil diseases of turfgrass and ornamental plants:

- Ornamental Sites – such as flowers, bulbs, bedding plants, ground cover, seed or propagating beds
- Field Nurseries – such as forest, nonbearing and ornamental trees, shrubs, or Christmas tree seedlings
- Turf Sites - establishment or renovation of existing sites such as golf courses (fairways, tees, greens), athletic fields, sod farms, or lawns
- Greenhouses
- Hoop Houses
- Soil Media - such as potting soil, soil heaps, or compost piles

### Food Crops

- Interplanting
- Nonbearing Crops
- **California:** Strawberries and tomatoes only. For these uses the buffer zone shall be 500 ft. unless otherwise specified by the Department of Pesticide Regulation or the local county agricultural commissioner.

### Weeds Controlled

When properly applied, this product will eliminate many weeds such as crabgrass, henbit, pigweed, foxtail, purslane, mustard, witchweed, and many other plants and weed seeds. For a complete list see **Table 5 – Germinating Seeds of Annual and Perennial Weeds**, **Table 6 – Root Propagated Weeds**, and **Table 7 – Parasitic weeds**.

### Nematodes controlled

This product will control root knot, stubby root, reinform, ectoparasitic root, (i.e., *Meloidogyne* sp., *Pratylenchus* sp., *Hoplolaimus* sp., *Tylenchorrhynchus* sp., *Rotylenchulus* sp., *Paratylenchus* sp., *Xiphinema* sp., *Tylenchus* sp.) and other nematodes. For a complete list see **Table 8 – Plant-parasitic nematodes**.

### Diseases controlled

This product will control root rots, damping off, and wilt diseases caused by *Aphanomyces* sp., *Fusarium* sp., *Phytophthora cactorum*, *Pythium* sp., *Rhizoctonia* sp., *Thielaviopsis basicola*, *Verticillium albo-atrum*, and soil-borne *Stromatinia gladioli* and corm rot of gladiolus caused by *Fusarium* sp. For a complete list see **Table 9 – Soil-borne Fungi** and **Table 10 – Soil-borne Bacteria**.

### Important Notes to User

- 1) Read the entire label carefully before use.
- 2) This product is toxic to all growing plants.
- 3) Do not apply within 3-4 feet of growing plants or closer than the drip line of trees and large shrubs. Root pruning with a plow or trencher is recommended when applications will be made adjacent to large plant material.
- 4) If slopes are treated with this product, take precautions to prevent the chemical from washing downward toward desirable plants, creeks, streams, lakes or ponds. Erect silt fences or place straw bales in vulnerable areas. Cover drains in the treated area that may empty into ponds or creeks or onto desirable vegetation. Tarping of these areas is also effective to reduce the possibility of off site movement.
- 5) Vapors from soil treated with this product in greenhouses and cold frames may injure growing plants. Data are not complete on use in propagating beds composed of materials other than soil or soil and peat mixtures. Clean equipment thoroughly with detergent and water after using with this or with other pesticides before using for other purposes.
- 6) Fumigation may slow the rate of nitrification (the conversion of nitrates from ammonia by bacterial action). Therefore, certain ammonia-sensitive plants may exhibit growth inhibition when planted in fumigated soils containing high amounts of ammonia nitrogen. To lessen this hazard, at least half, and preferably all, of the nitrogen fertilizer added immediately before or soon after fumigation should be in the form of nitrate nitrogen. This hazard may also be reduced by delaying planting until several months after fumigation, such as fall fumigation before a spring-planted crop. If a nitrate form of nitrogen such as sodium or calcium nitrate is not readily available, ammonium nitrate used sparingly will supply the nitrogen needed without risk. Phosphorus, potassium, and other plant nutrients should be used according to soil needs.

## Mode of Action

When Basamid® G soil fumigant is correctly incorporated into moist soil, the active ingredient is transformed into methyl isothiocyanate (MITC) gas. MITC diffuses upward through spaces in the soil, killing the living organisms it contacts. As with other sterilizing materials, the effectiveness of Basamid® G depends primarily on the concentration used, the length of time that it takes effect, and the physiological state of the organisms to be controlled. Free-living nematodes, developing fungal mycelium, and freshly-germinating weed seeds are most likely to be controlled. Dormant weed seeds, fungi in a resting stage, and encysted nematodes, or those protected within roots, will not be controlled. Therefore, all plant residues should be tilled into the soil and allowed to rot, or removed from the area to be treated. Also, the soil to be treated must be moist before, during, and after application. The necessary concentration and the length of time required for effective fumigation depends upon proper soil preparation, moderate soil temperature, and proper soil moisture.

## Crop Tolerance

All crops listed on the label are tolerant to areas that have been treated with Basamid®G following dissipation of the gases. Data have shown that certain subsequent crops are positively influenced by a Basamid® G treatment, because pathogens, weeds, etc. will not have time to multiply and compete with the crop for nutrients. However, the presence of Basamid® G is toxic to all growing plants. Perform the **Safety Germination Test** to ensure the absence of gases.

## Cleaning Equipment

Clean application equipment thoroughly using a strong detergent or commercial sprayer cleaner according to the manufacturer's directions before and after applying this product.

# APPLICATION INSTRUCTIONS

## Preparation Prior to Application

- 1) Basamid® G can be applied to tilled and non-tilled sites:
  - a. **Tilled Sites:** The area intended for treatment should be in seedbed condition with a fine tilth, free of clods. Repeated cultivation before treating will improve control of perennial weeds.
  - b. **Non-Tilled Sites:** Remove existing vegetation with a mower or other suitable equipment. The vegetation must be cut to the lowest height possible, 1/8-inch or less. Aerate and/or verticut to improve water penetration and remove surface debris.
- 2) The soil to be fumigated must have sufficient moisture for good plant growth for 5-14 days (depending on temperature) before the treatment. The weed seeds in such an optimally moist soil become ready to germinate, and are most reliably controlled in this condition. Heavy soils may need to be irrigated twice to achieve a uniform moisture in the treated zone. In tilled sites, weed seeds or plant material bearing nematodes must be mechanically hoed or plowed into the soil 1-2 weeks before fumigating so that the emerging weeds and nematodes are subject to fumigation.
- 3) If root-knot nematodes must be controlled, delay application at least 2-3 weeks, until the root-knot infested root residues have begun to decompose and the remaining plant refuse has been tilled into the soil.
- 4) Do not apply farmyard manure, peat, other organic fertilizers, burnt lime, or lime nitrogen just before, along with, or just after this product.
- 5) Converting the active ingredient into the gaseous phase depends primarily on soil moisture and temperature. Prior to application, soil moisture should be at 60-80% field capacity for sand, 50% for loam, and 30-40% for clay soils. The soil temperature must be above 43° F (6° C) and remain at least this high during the entire fumigation period. Application in the field during periods of possible frost must be avoided. If the soil temperature falls below 43° F (6° C), the gas may sink into deeper soil layers when there is danger of frost which can cause crop injury later if the soil is not aerated deeply enough. The best conditions prevail at soil temperatures of 54-69° F (12-20° C). Do not apply Basamid® G if the soil temperature exceeds 90° F (32° C) or the ambient air temperature exceeds 103° F (39° C). If the soil temperature is too high, the gases escape too rapidly from the soil, resulting in incomplete fumigation.
- 6) The soil must be kept uniformly moist for 5-7 days after Basamid® G incorporation. As soon as possible after incorporation, the soil should be sealed to retain the concentration of gases in the soil. Sealing can be achieved by:
  - a. compacting the soil surface after incorporation with a roller behind the incorporating implement.
  - b. moistening the surface (3/16-3/8" of water) after incorporation so a crust forms. Surface compaction and sealing with water can be combined if conditions warrant. When the soil is above 59° F (15° C), sealing with water or light rolling slows escape of the fumigant gas, thus increasing the effectiveness of Basamid® G. Repeat the water seal as necessary.
  - c. lightly moistening the soil on the third and fourth days after treatment. This is most effective in situations where weather dries out the soil surface and aids in avoiding surface cracks.
  - d. covering the treated areas with tarps. In difficult situations e.g., heavy soils with high pest pressures or where potential for extensive erosion exists, tarping may provide the best results.

- 7) Each soil type will require a different water management program. Clay soils may require slightly less water, while sandy soils may require more water. Light, frequent irrigations are recommended. Never apply water in such a volume that will allow it to stand on the soil surface for extended periods of time. If rainfall occurs during the watering program, adjust the watering frequency and amount to keep soil at near 50% field capacity.

## Methods of Application

Apply Basamid® G soil fumigant to properly prepared soils using scoops, shakers, shanks, drop-type fertilizer spreaders, or other suitable equipment. To prevent Basamid® G from sticking to the tires of the application equipment, the surface of the soil should be dry to the touch at the time of application. Either incorporate the material physically into the soil to the desired depth, or incorporate the material into the soil with water. If physically incorporated, the soil surface should be sealed as described in the **Preparation Prior to Application** section. **DO NOT** store Basamid® G overnight in an uncovered container. **DO NOT** apply Basamid® G when wind may cause granules to drift from target area.

### Physical Incorporation for Combined Disease, Nematode, and Weed Control

- 1) Apply Basamid® G to the soil.
- 2) After applying, incorporate the granules into the soil as uniformly as possible to the desired depth. This is best accomplished with an L-shaped tine rototiller or spading machine.
- 3) Following incorporation, seal the soil surface by smoothing or rolling to impede fumigant escape.
- 4) The treatment is more successful if the incorporation and sealing is followed by thoroughly wetting the soil, keeping it moist (but not waterlogged) for 72 hours. Alternatively, the soil can be covered with a barrier film (such as polyethylene sheeting or other material) to retain fumigant vapors.

### Water Incorporation with Overhead Irrigation for Disease and Weed Control

- 1) Apply Basamid® G to the soil.
- 2) After spreading, apply overhead irrigation to activate the Basamid® G and seal the soil surface.
  - a. Day 1: Irrigate sufficiently to move the water front 4 to 6 inches into the soil profile. Depending on soil type, structure, and weather conditions, approximately 0.75 to 1 inch of water. Repeat the application, as necessary, to ensure the soil profile is thoroughly wetted and all granules are activated. This liquid phase will ensure contact of the soil particles with Basamid® G throughout the incorporated profile. Contact with the soil particles is a critical factor to the success of Basamid® G.
  - b. Day 2: Continue irrigations to ensure that the surface area remains sealed, but not waterlogged. Typically, half the amount of water applied on Day 1 should be sufficient. Make multiple applications, depending on local conditions, to ensure that no gases escape as they move up through the soil.
  - c. Day 3: Continue irrigations to ensure that the surface area does not dry out and no cracks appear in the treated area. Typically, half the amount of water applied on Day 2. Multiple applications, depending on local conditions, may be necessary to reduce gas escape from the soil.
  - d. Day 4: Irrigate with a minimal amount of water to keep the surface sealed and free of cracks. Typically, half the amount of water applied on Day 3. Make multiple applications, depending on local conditions.

### Water Incorporation with Drip Irrigation for Disease and Weed Control

- 1) Drip irrigation tape or tubing can be applied prior to, or following, the Basamid® G application.
- 2) Apply Basamid® G to the soil.
- 3) After applying, cover with plastic mulch.
- 4) Activate the Basamid® G using drip irrigation, wetting entirely to the margins of the treated area (such as bed shoulders).
- 5) The soil must be kept moist (but not waterlogged) for 72 hours.



## Application Rates

The application rates in Table 1 are based on an incorporation depth of 6 inches. Additional Basamid® G is needed when the infestation extends to greater depths. DO NOT exceed 530 lbs per acre. For specific use recommendations, see **SITE-SPECIFIC INFORMATION**.

**Table 1. Basamid® G Application Rates**

Weeds, Nematodes, and Diseases		Application Rate at 6 Inch Incorporation Depth			Ounces Per cubic yard
		Ounces per 100 sq feet	Pounds Per 1000 sq feet	Pounds Per Acre	
To control soil borne pathogens <sup>1</sup>		10 – 13	6 – 8	260 – 350	5 – 7
To control weeds <sup>2</sup>	Seed propagated	8 – 17	5 – 10	220 – 450	4 – 9
	Root propagated	8 – 19	5 – 12	220 – 530	4 – 11
To control ectoparasitic root nematodes <sup>3</sup>	in light soils	8 – 10	5 – 6	220 – 260	4 – 5
	in heavy soils	10 – 13	6 – 8	260 – 350	5 – 7
To control root-knot nematodes	in light soils	11 – 13	7 – 8	305 – 350	6 – 7
	in heavy soils	13 – 17	8 – 10	350 – 450	7 – 9
To reduce infestations of stem and cyst nematodes <sup>4</sup>		11 – 19	7 – 12	305 – 530	6 – 11
Product needed per 4 inches of additional soil depth		5 – 7	3 – 4	136 – 177	---

1) Soils infected with the fungi *Verticillium albo-atrum* and *Fusarium oxysporium* must be treated to a depth of 12" (13 ounces per 100 square feet or 8 pounds per 1,000 square feet).

2) If the primary goal is to eliminate annual weeds, 8 ounces per 100 square feet should be incorporated into the top 6 inches.

3) For lighter soils that are heavily infested with nematodes, use the application rates recommended for heavy soils.

4) Mechanically incorporate plant parts into the soil to boost their disintegration and improve the degree of reduction.

## Preparation Prior to Planting

Before seeding, planting, or transplanting, all the gaseous residues must be gone from the soil. The time between treatment and replanting depends on soil temperature, structure, moisture, and the method of sealing. Do not plant any crop until all fumigant odors have dissipated from the soil and can no longer be detected. Follow the instructions below to allow any remaining fumigant gases to escape from treated soil before planting. As an added precaution, conduct a cress or lettuce seed germination test as follows:

### Safety Germination Test

- 1) Take soil samples at several places in the treated area. Scrape the surface soil aside and quickly fill a sample into a clear (transparent) glass jar. Do not take soil from below the depth of incorporation. Depending on the size of the jar used, either combine samples into a single jar or fill each sample into a separate jar. Fill the jars about halfway and seal them. As a control, fill an additional jar with untreated soil and seal.
- 2) Sow a small amount of cress (*Lipidium sativum*) or lettuce (*Lactuca sativa*) seeds directly onto the soil and seal the jars. Use the same amount of seed in each jar. The soil should be sufficiently moist to assure quick germination.
- 3) Place the jars in a room with sufficient temperature to allow for speedy germination. Check for germination after 2 to 3 days. If the seeds have germinated in the jar with the untreated soil but not in the jars with the treated soil, MITC has not yet completely degraded and the treated soil should not be planted. In this case, repeat the germination test after an additional 1-3 days aeration of the treated area. If seeds in all jars germinate normally, and begin to develop normal roots, it is safe to plant the crop.

### Soils without Plastic Covers or Mulch

Aerate the soil with hand implements, rakes, or power tillers above the depth of original incorporation before planting. The soil must not be loosened to the original depth of incorporation as non-fumigated soil may be transported up from lower layers. A new infestation can spread very quickly in decontaminated soil and jeopardize the success of the treatment.

Avoid planting into treated soil within 1 week after Basamid® G application to allow fumigation to occur and MITC gas to dissipate to levels safe for planting. **Table 2 – Planting Recommendations: Soil Temperature and Waiting Period** provides recommended waiting periods between treatment and planting based on soil temperature. The waiting period can be shortened by repeated hoeing, digging, or other tillage of the soil to speed aeration. Longer waiting periods may be

required in soils with high concentrations of organic matter. Fall soil treatment is recommended if early spring planting is necessary.

**Table 2. Planting Recommendations: Soil Temperature and Waiting Period *without* Plastic Covers**

Soil Temperature at 4" Depth	Gas Activity (Days)	Aeration Time (Days)	Germination Test (Days)	Recommended Waiting Period from Treatment to Planting (Days)
77° F (25° C)	4	2	2	8
68° F (20° C)	6	3	2	11
59° F (15° C)	8	5	2	15
50° F (10° C)	12	10	2	24
41° F (5° C)	25	20	2	47

**Soils Covered with Plastic Mulch**

Transplants, bulbs, or seeds can be planted directly into a previously treated bed if certain precautions are followed. The plastic sheeting used to tarp a treated area can also function as a mulch and be left in place in the field. For this application, observe the following steps:

- 1) A waiting period (see **Table 3 – Planting Recommendations: Soil Temperature and Waiting Period *with* Plastic Covers**) is recommended between application and planting.
- 2) Cut holes in the plastic 4 to 7 days before the intended planting date. Cultivation to aerate treated soil cannot be performed before planting as in situations where plastic mulch is not present.
- 3) Perform Safety Germination Test.
- 4) Proceed with planting if the seeds germinate normally as described in the Safety Germination Test.

**Table 3. Planting Recommendations: Soil Temperature and Waiting Period *with* Plastic Covers**

Soil Temperature at 4" Depth	Recommended Waiting Period from Treatment to Planting
Above 75° F (24° C)	14 days
65-75° F (18-24° C)	21 days
55-65° F (13-18° C)	30 days

**GENERAL RESTRICTIONS AND LIMITATIONS**

Maximum seasonal use rate: Refer to **Table 1 – Basamid® G Application Rates** for maximum rates of Basamid® G soil fumigant per acre, per season.

- 1) Preharvest Interval (PHI): Refer to **Preparation Prior to Planting**.
- 2) Restricted Entry Interval (REI): Refer to **Agricultural Use Requirements**.
- 3) Crop Rotation Restriction: If all label procedures are followed correctly and all gases have escaped, no crop rotation restrictions apply.
- 4) This product cannot be used to formulate or reformulate any other pesticide product.
- 5) DO NOT apply Basamid® G to growing crops - it is for use as a soil treatment only.
- 6) DO NOT use Basamid® G when soil temperatures 4" deep are below 43° F (6° C) or above 90° F (32° C).
- 7) DO NOT apply Basamid® G if the ambient air temperature exceeds 103° F (39° C).
- 8) DO NOT plant any crop until all fumigant gases have dissipated from the soil. A Safety Germination Test is recommended.
- 9) DO NOT apply within 3-4 feet of growing plants or closer than the drip line of trees and large shrubs.
- 10) DO NOT apply Basamid® G to dry or improperly tilled soil.
- 11) DO NOT store this product overnight in an open container.
- 12) DO NOT apply Basamid® G when wind may cause granules to drift from the target area.
- 13) DO NOT re-use clothing and other absorbent material that have been heavily contaminated with this product.
- 14) DO NOT apply Basamid® G through any type of irrigation equipment.
- 15) DO NOT apply or mix with any other material.

**SITE SPECIFIC INFORMATION**

**Turf Sites - Establishment or Renovation**

Basamid® G can be used for new construction or renovation of existing turf sites such as golf courses (fairways, tees, greens), athletic fields, sod farms, or lawns. Site preparation prior to applying Basamid® G on such sites may differ depending on the type of turf, i.e. cool season vs. warm season grasses.

- 1) Cool Season Grass – Typically a renovation of a turf site to kill the existing grasses and weed seeds in the soil profile, without disturbing the soil. The area should be mowed to the lowest cutting height possible (1/8-inch or less). Then core aerated in several directions to allow movement of the product into the targeted soil profile (generally 6-8 inches). Cores should be removed and the area cleaned of debris. Verticutting may be necessary if water infiltration will be inhibited by a thatch layer.
- 2) Warm Season Grass - Most warm season turf situations involve the removal, or mechanical incorporation, of a thatch layer consisting of rhizomes and/or stolons. Under these conditions, two to three applications of a broad spectrum herbicide, such as glyphosate, prior to disturbing the soil is generally beneficial.

In both turf situations, follow the instructions in **Preparation Prior to Application** and apply the recommended rate (see **Table 1 – Basamid® G Application Rates**) using a drop-type spreader. Incorporate and seal the soil surface by following the instruction in **Methods of Application - Water Incorporation with Overhead Irrigation for Disease and Weed Control**. Prior to seeding, sodding, or sprigging follow the instructions in **Preparation Prior to Planting**. For additional information contact your Certis USA representative.

**Greenhouses**

Basamid® G can be used for fumigation in greenhouses. Observe all **Personal Protective Equipment (PPE)** requirements for use in greenhouses and other enclosed areas. Before applying Basamid® G soil fumigant in greenhouses, nursery boxes, etc., all plants and living plant materials must be removed. Leaks through which gases could penetrate into adjacent rooms or greenhouses filled with plants must be sealed. Various ornamentals (e.g., *Ficus* sp., *Hydrangea macrophylla*, *Asparagus plumosus*) are very sensitive to trace amounts of MITC. Follow instructions in **Preparation Prior to Application**. Select an appropriate application rate (see **Table 1 – Basamid® G Application Rates**) and methodology as outlined in **Methods of Application**. Following fumigation, and before turning off the heat in a greenhouse closing for the winter, a germination test must be performed to ensure that MITC has completely degraded. Failing to eliminate all the gases from the soil may delay spring planting or cause plant loss. Prior to seeding or transplanting follow the instructions in **Preparation Prior to Planting**.

**Soil Media**

Basamid® G can be used for disinfestation of soil media, such as potting soils, soil heaps, or compost piles. Mechanically incorporate the recommended amount of product (see **Table 1 – Basamid® G Application Rates**) per cubic yard of substrate. Soil moisture should be maintained at 60-80% field capacity for sand, 50% for loam, and 30-40% for clay soils. The soil temperature must be above 43° F (6° C) and remain at least this high during the entire fumigation period. Commercial soil preparation setups, such as conveyors or cement-type mixers, have proved suitable. Any suitable alternative for mixing this product with the soil is acceptable. Following are two example of acceptable methods:

**Layering**

- 1) Spread moist soil on a solid surface, if possible on a polyethylene sheet.
- 2) Each soil layer should be 8-10" deep.
- 3) The required amount of Basamid® G is spread on each soil layer and thoroughly incorporated with a rotary tiller.

**Bulk**

- 1) Mix moist soil on a solid surface, if possible on a polyethylené sheet.
- 2) Using a front loader, or equivalent, thoroughly mix the required amount of Basamid® G with a measured volume of soil by repeated turning of the soil pile.
- 3) Repeat the procedure until all the untreated soil has been blended.

Treated soil can be heaped up to 1 yard high (36 inches). To seal the surface and reduce gas escape, covering the soil heap with a plastic tarp is highly recommended. Leave the pile covered for a minimum of 7 days, then remove the cover and leave undisturbed for an additional 7 days to allow residual gas to dissipate. Prior to use, follow the guidelines in **Preparation Prior to Planting** and utilize the **Safety Germination Test**.

## Interplanting

For soil treatment prior to interplanting in existing orchards, berry fields, and similar areas, thoroughly till a spot large enough to accommodate the root system of the plant. Root systems of nearby existing plants should be completely severed to avoid contact with the treated soil. Soil may be treated in place based on the area and depth tilled using the instructions in **Method of Application - Physical Incorporation for Combined Disease, Nematode, and Weed Control**. The soil may be removed and treated in a pile (see **Soil Media**). The soil surface should be tarped for best results. Do not harvest produce within one year of application.

### PESTS LISTED ON THIS LABEL

#### Germinating seeds of annual weeds

Common Name	Scientific Name
Barnyardgrass*	<i>Echinochloa crus-galli</i>
Blackgrass*	<i>Alopecurus myosuroides</i>
Bristlegrass*	<i>Setaria</i> spp.
Buckwheat, Wild*	<i>Polygonum convolvulus</i>
Callalily, Brazil*	<i>Richardia brasiliensis</i>
Chamomile, Wild*	<i>Matricaria chamomilla</i>
Chickweed*	<i>Galium aparine</i>
Cleavers*	<i>Centaurea cyanus</i>
Corn flower*	<i>Digitaria</i> spp.
Crabgrass	<i>Stellaria media</i>
	<i>Apera spica-venti</i>
Fescuegrass*	<i>Festuca myuros</i>
Foxtail, Short-awned	<i>Alopecurus aequalis</i>
Fumitory, Common*	<i>Fumaria officinalis</i>
Galinsoga, Small-flowered*	<i>Galinsoga parviflora</i>
Groundsel*	<i>Senecio vulgam</i>
Hempnettle*	<i>Galeopsis tetrahit</i>
Henbit	<i>Lamium amplexicaule</i>
Itchgrass*	<i>Rottboellia exaltata</i>
Jimsonweed*	<i>Datura stramonium</i>
Knotgrass*	<i>Polygonum aviculare</i>
Ladysthumb*	<i>Polygonum persicaria</i>
Lambsquarters*	<i>Chenopodium album</i>
Marigold, Dwarf*	<i>Schkuhria pinnata</i>
-----, Corn*	<i>Chrysanthemum segetum</i>
Meadowgrass, Annual*	<i>Poa annua</i>
Mustard, Wild	<i>Sinapis arvensis</i>
Nettle, Small*	<i>Urtica urens</i>
Nightshade, Black*	<i>Solanum nigrum</i>
Oats, Wild*	<i>Avena fatua</i>
Pennycress, Field*	<i>Thlaspi arvense</i>
Pigweed	<i>Amaranthus</i> spp.
Purslane, Common	<i>Portulaca oleracea</i>
Radish, Wild*	<i>Raphanus raphanistrum</i>
Rapeseed*	<i>Brassica</i> spp.
Shepherdspurse*	<i>Capsella bursa-pastoris</i>
Smartweed, Pale*	<i>Polygonum lapatifolium</i>
Spurge, Sun*	<i>Euphorbia helioscopia</i>
Vetch, Tufted*	<i>Vicia cracca</i>
Witchweed	<i>Striga asiatica</i>
Yellowrocket*	<i>Barbarea vulgaris</i>
Mushroom Pathogen	<i>Myriococcum</i> spp.*
Mushroom Pathogen	<i>Thielavia</i> spp.*
Mushroom Pathogen	<i>Diehlomyces microsporus</i> *
Silver leaf	<i>Stereum purpureum</i> *
	<i>Chaetomium</i> spp.*
	<i>Clomerella cingulata</i> *
	<i>Collectotrichum</i> spp.*
	<i>Cylindrocarpon</i> spp.*
	<i>Nigrospora sacchan</i> *
	<i>Sporotrichum spinulosum</i> *
	<i>Stemphylium radicinum</i> *

**Plant-parasitic nematodes**  
**Cyst-forming root nematodes**

Common Name	Scientific Name
Eelworm, -Beet Cyst -----, Pea Cyst -----, Yellow Potato Cyst	<i>Heterodera schachtii</i> * <i>Heterodera goettingia</i> * <i>Globodera rostochiensis</i> *

**Free-living (migratory) root nematodes**

Common Name	Scientific Name
Eelworm, Dagger Nematode, Lance -----, Root -----, Spiral -----, Stunt	<i>Rorylenchus</i> spp. <i>Hoplolaimus</i> spp. <i>Tylenchus</i> spp. <i>Tylenchorrhynchus</i> spp. <i>Xiphinema</i> spp.

**Root knot nematodes**

Common Name	Scientific Name
Eelworm, Root Knot	<i>Meloidogyne</i> spp.

**Stem and leaf nematodes**

Common Name	Scientific Name
Eelworm, Stem and Bulb	<i>Ditylenchus dipsaci</i> *

**Bacteria**

Common Name	Scientific Name
Gall, Crown	<i>Agrobacterium tumefaciens</i> *

**Weeds**

To reduce the infestation of root-propagated weeds

Common Name	Scientific Name
Bermudagrass Bindweed, Field Clover Cress, Hoary Quackgrass Rough cinquetoil Sedges Stinging nettle	<i>Cynodon dactylon</i> * <i>Convolvulus arvensis</i> * <i>Trifolium</i> spp.* <i>Agropyron repens</i> * <i>Cardaria draba</i> * <i>Potentilla norvegica</i> * <i>Cyperus</i> spp.* <i>Urtica dioica</i> *

**Parasitic weeds**

Common Name	Scientific Name
Broomrape Dodder Witchweed	<i>Orobanche</i> spp.* <i>Cuscuta</i> spp.* <i>Striga</i> spp.*

Perennial seed-propagated weeds

Common Name	Scientific Name
Birdweed*	<i>Convolvulus arvensis</i>
Cinquefoil*	<i>Potentilla norvegica</i>
Clover*	<i>Trifolium</i> spp.
Cocksfoot*	<i>Dactylis glomerata</i>
Cress, Hoary*	<i>Cardaria draba</i>
Dock, Broadleaved*	<i>Rumex obtusifolius</i>
Medic*	<i>Medicago</i> spp.
Nettle, Stinging*	<i>Urtica dioica</i>
Quackgrass*	<i>Agropyron repens</i>
Sedges*	<i>Cyperus</i> spp.

Soil-borne fungi

Common Name	Scientific Name
<b>Blights</b>	
Blossom blight	<i>Choanephora cucurbitarum</i> *
Early blight	<i>Alternaria solani</i> *
<b>Molds</b>	
Black Mold	<i>Aspergillus niger</i> *
Black Mold	<i>Cladosporium herbarum</i> *
Citrus Molds	<i>Penicillium</i> spp.*
Grey Mold	<i>Botrytis</i> spp.*
Molds	<i>Mucor circinelloides</i> *
White Mold	<i>Mycogone perniciosa</i> *
<b>Scabs</b>	<i>Streptomyces</i> spp.*
<b>Spots</b>	
Eyespot	<i>Cercospora</i> spp.*
<b>Root Diseases</b>	
Club Root	<i>Plasmodiophora brassicae</i> *
Corky Root of Tomato	<i>Pyrenochaeta lycopersici</i> *
Root Disease	<i>Rhizoctonia</i> spp.
Root Diseases	<i>Rosellinia</i> spp.*
<b>Rots</b>	
Blackroot rot	<i>Macrophomina phaseolina</i> *
Blackroot rot	<i>Phomopsis sclerotioides</i> *
Blackroot rot	<i>Thielaviopsis basicola</i>
Bitter Rot	<i>Gloeosporium fructigenum</i> *
Buttrot	<i>Fomes</i> spp.*
Citrus bitter rot	<i>Trichothecium roseum</i> *
Club Root	<i>Plasmodiophora brassicae</i> *
Corky Root of Tomato	<i>Pyrenochaeta lycopersici</i> *
Foot Rots	<i>Fusarium</i> spp.
Fruit Rot	<i>Didymella lycopersici</i> *
Fruit Rot	<i>Choanephora cucurbitarum</i> *
Heartrot	<i>Fomes</i> spp.*
Root Rot	<i>Aphanomyces</i> spp.
Root Rot	<i>Helicobasidium mompa</i> *
Root Rots	<i>Phytophthora</i> spp.
Root Rot	<i>Sclerotium</i> spp.*
Sclerotinia Softrots	<i>Sclerotinia</i> spp.*
Soft Rot	<i>Rhizopus</i> spp.*
Tomato Stem Rot	<i>Didymella lycopersici</i> *
White Rot	<i>Sclerotium cepivorum</i> *
<b>Wilts</b>	
Wilts	<i>Phialophora</i> spp.*
Wilt disease	<i>Verticillium</i> spp.
<b>Others</b>	
Blackleg	<i>Phoma</i> spp.*
Damping Off	<i>Pythium</i> spp.

\* Not approved for use in California

**WARRANTY**

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended, and other influencing factors in the use of this product are beyond the control of the seller. To the extent allowable by State law, the buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

