

70051-101

04-30-2010

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

CERTIFIED MAIL

Christine Dively
Certis USA, LLC
9145 Guildford Road, Suite 175
Columbia, MD 21046

APR 30 2010

Subject: BasamidG
EPA Reg. No. 70051-101
Dazomet RED Mitigation Amendment dated August 31, 2009
EPA Decision Number D432737

Dear Ms. Dively:

The amended label referred to above, submitted in connection with reregistration of dazomet under the Federal Insecticide, Fungicide and Rodenticide Act as amended is acceptable provided the following label revisions are made and the following conditions are met:

LABEL REVISIONS

1. On page 1: the statement "**Restricted Use Pesticide**" must appear at the very top of the label's front panel. No other wording or symbols should appear above the RUP statement. The phrase "Restricted Use Pesticide" on the front panel must meet the minimum type size requirements of the human hazard signal words. Please see 40 CFR 156.60(b)(1) for the type size requirement for front panel warning statements which is dependent on the size of the label's front panel. A briefly stated reason for the restricted use classification should directly follow "Restricted Use Pesticide." The RUP statement should be enclosed in a box to enhance its visibility on the label.
2. On page 2: remove the letter 's' from the word 'chemicals' in the second bullet under **Personal Protective Equipment (PPE)**
3. On page 2, in the bullet under Personal Protective Equipment for Respiratory Protection that specifies "a respirator with a canister approved for pesticides," add the following phrase: "*or canister with any N, R, P or HE prefilter.*"
4. On page 2 insert a space above the **User Safety Requirements** section.
5. On page 2 increase the font size of the User Safety Requirements heading to match the other headings.

6. On page 3: insert the following text to the second bullet under the **Entry Restricted Period and Notification** section before the comma and word “or” at the end of that bullet:

(Note: persons installing, repairing, or monitoring tarps are handlers until 14 days after the application is complete if tarps are not perforated and removed during those 14 days.)

7. On page 3 remove the letter ‘s’ from the word ‘ tarps’ in the third bullet under **Entry Restricted Period and Notification** section.

8. On page 3 revise the text in the **NOTE** section under **Entry Restricted Period and Notification** to read as follows: “see Tarp Perforation and/or Removal section on this labeling for requirements about when tarps are allowed to be perforated.”

9. On page 3: under the **NOTIFICATION** section, item #6 must be revised from reading “Name of this product” to reading “Basamid G” in quotes.

10. On page 3: remove the word “Fumigation” at the beginning of the paragraph under the **Protection for handlers** section.

11. On page 3: insert the following sentence in the first paragraph under the **Protection for handlers**, section, right after the sentence ending “from the start of the application until the entry-restricted period ends.”:

(NOTE: persons installing, removing, perforating, removing, repairing, and monitoring tarps are considered handlers for the durations listed below).

12. On page 4: remove the words “[the registrant provided]” located under the **Supervision of handlers** section in the fifth paragraph and revise this paragraph to the following:

“The certified applicator must provide Fumigant Safe Handling information to each handler involved in the application or confirm that each handler participating in the application has received Fumigant Safe Handling information in a manner they can understand within the past twelve months. Fumigant Safe Handling information will be provided where this product is purchased or at www.epa.gov/fumiganttraining.”

13. On page 4: in the fifth paragraph under the **Supervision of handlers** section, capitalize the first letters of the following text: “Fumigant Safe Handling.”

14. On page 4: add an additional bullet underneath the third bullet in the **Respiratory and Stop Work Triggers** section which reads, “When breathing zone samples are required, they must be taken outside respiratory protection equipment and within a ten inch radius of hander’s nose and mouth.”

15. On page 5: add an additional sub-bullet underneath the second bullet in the **Respiratory and Stop Work Triggers** section (this bullet should be indented like the sub-bullets underneath the first bullet). The sub-bullet must read, "During the collection of air samples, an air-purifying respirator must be worn by the handler taking the air samples." Samples must be taken where the irritation is first experienced.

16. On page 5: the last bullet in the **Respiratory and Stop Work Triggers** section must be indented to become the fourth sub-bullet in that section.

17. On page 5: the **Respirator fit testing, medical qualifications and training** section must be revised to read as follows:

Employers must verify that any handler that uses a respirator is:

- Fit-tested and fit-checked using a program that conforms to OSHA's requirements (see 29 CFR Part 1910.134)
- Trained using a program that conforms to OSHA's requirements (see 29 CFR Part 1910.134)
- Examined by a qualified medical practitioner to ensure physical ability to safely wear the style of respirator to be worn. A qualified medical practitioner is a physician or other licensed health care professional who will evaluate the ability of a worker to wear a respirator. The initial evaluation consists of a questionnaire that asks about medical conditions (such as a heart condition) that would be problematic for respirator use. If concerns are identified, then additional evaluations, such as a physical exam, might be necessary. The initial evaluation must be done before respirator use begins. Handlers must be reexamined by a qualified medical practitioner if their health status or respirator style or use-conditions change. Upon request by local/state/federal/tribal enforcement personnel, employers must provide documentation how they have complied with those these requirements."

18. On page 5: the last sentence in the **Tarp Perforation and/or Removal** section must be sub-bulleted like the sub-bullet that precedes it.

19. On page 6 revise the third bullet under the **Weather Conditions** heading to read, "Do not apply if a shallow, compressed (low-level) temperature inversion is forecast to persist for more than 18 consecutive hours for the 48-hour period after the start of application, or if there is an air-stagnation advisory issued by the National Weather Service in effect for the area in which the fumigation is planned."

20. On page 6 revise the fourth bullet under the **Weather Conditions** heading to read: "Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: <http://www.nws.noaa.gov> or by contacting your local National Weather Service Forecasting Office."

21. On page 6 revise the second sentence under the ***Identifying Unfavorable Weather Conditions*** heading to read, “ The resulting air mass can move off-site in unpredictable directions.”
22. On page 6: remove the following sentence that currently appear below the ***Identifying Unfavorable Weather Conditions*** section: “The following requirements may already be on dazomet end use product labels. All of these label statements are required.” Replace this sentence with the following heading: “Application Restrictions.”
23. On page 6: in the first bullet under the sentences being removed per comment #21 above, change ‘2”’ to “2 inches”.
24. On page 6 in the first bullet under the **Site-Specific Fumigation Management Plan (FMP)** section replace the words “metam sodium/potassium” with “dazomet”
25. On page 7: the first sub-bullet under the 13th bullet under the **Site-Specific Fumigation Management Plan (FMP)** section must remove the following text, “(registrants may also include optional GAPS)”
26. On page 7: the 14th bullet (*Description of hazard communication*) under the **Site-Specific Fumigation Management Plan (FMP)** section must add the abbreviation “e.g.” at the beginning of the text in the parenthesis
27. On page 8, the last sentence at the bottom of the **Post-Application Summary** section must be bulleted.
28. On page 9: under the **Mode of Action** section, the following language must be removed. “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 length of time required for effective fumigation depends upon proper soil preparation, moderate soil temperature, and proper soil moisture.”
29. On page 11: remove the following sentence from the paragraph below the **Application Rates** section: “DO NOT exceed 530 lbs per acre.”
30. On page 11: move the **Maximum Application Rates for Pre-Plant Soil Fumigation** box to directly below the **Application Rates** heading.
31. On page 11: in the **Maximum Application Rates for Pre-Plant Soil Fumigation** box, add the following statements after the rate for golf course fairways: “The maximum rate for surface applications is 265 lbs ai/A. The maximum rate for greenhouse applications is 265 lbs ai/A.”
32. On page 11: change the Table 1. heading to read, “ **Table 1. Basamid G Application Rates when Incorporated**”

33. On page 11: in Table 1, please specify if it is Pounds Per Acre of product or lbs ai/A. If pounds of product, add these rates in maximum application rate box.
34. On page 12: revise the heading **Soils without Plastic Covers or Mulch** to read as follows, **Soils without Tarps (e.g., Plastic Covers or Mulch)**.
35. On page 13 replace the term "plastic covers" with the term "tarps" in titles for Tables 2 and 3.
36. On page 13: revise the **Soils Covered with Plastic Mulch** section to read, **Soils Covered with Tarps**.
37. On page 13 replace the words "plastic covers" with the word "tarps" in item #1 under the **Soils Covered with Tarps** section.
38. On page 13: item #2 under the **General Restrictions and Limitations** section needs to be revised to read as follows, "Entry Restricted Period: Refer to Agricultural Use Requirements."
39. On page 14: in the **Greenhouses** section, move the **Requirements for Pre-Plant Greenhouse Soil Fumigations** sentence to below the paragraph that currently follows that sentence.
40. On page 14: in the Greenhouses section, insert the following after the second sentence ending with ... and other areas enclosed. "During the application keep doors, vents and windows to the outside open and fans or other mechanical ventilation systems running within the application block."
41. Pages 15- 18, the submitted label's list does not match the list on the last currently stamped label. Please see the list of discrepancies attached at the back of this document and make the appropriate corrections.
42. Page 18 - Update storage and disposal section in accordance to PRN 2007-4.

CONDITIONS

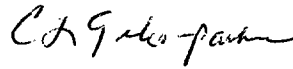
1. EPA has determined that the risk mitigation measures on the revised label for this product are necessary to adequately protect human health and the environment. Therefore, pursuant to 40 CFR § 152.130(d), EPA has decided that no product bearing previously approved labeling may be sold or distributed (release for shipment) by its registrant after December 1, 2010. Wherever state approval is required for sale or distribution of this product with this new labeling, EPA strongly encourages you to submit an application to the state authority as soon as possible. You should be aware that the Agency does not intend to modify the December 1, 2010, deadline because of any failure to obtain

necessary state approvals.

2. One copy of the label stamped "Accepted with Comments" is enclosed for your records. Please submit one copy of the final printed label that incorporates the required change before the product is released for shipment.

If you have any questions, please contact Shaja Joyner by phone at: 703-308-3194 or via email at: joyner.shaja@epa.gov.

Sincerely,



for

Shaja B. Joyner
Product Manager (20)
Fungicide Branch
Registration Division (7504P)

Enclosure: Crop List Discrepancies

Crop List Discrepancies

Newly Submitted Label	Last Accepted Label
Chickweed, common	Chickweed
Chickweed, mouseeared	
Cinquefoil, rough	Cinquefoil
Crabgrass, large	Crabgrass
Crabgrass, smooth	
Fescue, tall	Fescugrass
Foxtail, short-tailed	Foxtail, short-awned
Pigweed, smooth	Pigweed
Kikuyugrass (see table 6)	Not on label
Cyst-forming root nematodes (table 8)	Same scientific names, but different common names
Free-living root nematodes (table 8)	Same scientific names, but different common name (for one)
Root knot nematodes (table 8)	Same scientific names, but different common names
Stem and leaf nematodes (table 8)	Same scientific names, but different common names
Not on label	Scabs (table 9)
Root rots, melon (table 9)	Not on label
3 mushroom pathogens and silver leaf	Located in other tables of the label
Silver leaf has only one scientific name on label	Silver leaf has 7 scientific names
Soil pathogens (2) on table 9 listed as part of silver leaf on old label	

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)

Restricted Use Pesticide due to acute inhalation toxicity to humans. For retail sale to and use by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator's certification.

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-DEU-1

Lot Number:

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

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.)

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

CERTIS

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

Have the product or 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

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Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are Butyl Rubber ≥ 14 mils, Nitrile Rubber ≥ 14 mils, Neoprene Rubber ≥ 14 mils, Natural Rubber ≥ 14 mils, Poly-ethylene, Polyvinyl Chloride (PVC) ≥ 14 mils, Viton ≥ 14 mils. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

All handlers must wear at a minimum:

- coveralls over short-sleeved shirt and short pants when in the treated application block,
- chemicals resistant gloves when handling the product, and
- shoes plus socks.

PPE for eye and respiratory protection

All handlers are required to wear protective eyewear.

When respiratory protection is required, in lieu of protective eyewear, handlers must wear:

> at least a NIOSH-approved full-face, or helmet/hood style respirator with either

- an organic-vapor-removing cartridge with a prefilter approved for pesticides (NIOSH approval number prefix TC-23C), or
- a respirator with a canister approved for pesticides (NIOSH approval number prefix TC-14G).

User Safety Requirements

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, 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 reuse them.

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 pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

Dazomet has certain properties and characteristics in common with chemicals that have been detected in groundwater (dazomet is highly soluble in water and has low adsorption to soil).

For untarped applications, leaching and runoff may occur if there is heavy rainfall after soil fumigation.

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.

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.

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. For the entry restricted period and notification requirements, see the "Entry Restricted Period and Notification" sections of this labeling. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard (WPS).

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Entry Restricted Period and Notification

Entry Restrictions

Entry (including early entry that would otherwise be permitted under the WPS) by any person — other than a correctly trained and PPE-equipped handler who is performing a handling task listed on this labeling — is PROHIBITED — from the start of the application until:

- 5 days (120 hours) after the application is complete for untarped applications, or
- 5 days (120 hours) after application is complete if tarps are not perforated and removed for at least 14 days following application, or
- 48 hours after tarps perforation is complete if they will not be removed for at least 14 days following application, or
- until tarp removal is completed if tarps are both perforated and removed less than 14 days after application.

NOTE: see *Tarp Perforation and Removal* section on this labeling for requirements about when tarps are allowed to be perforated.

NOTIFICATION: Notify workers of the application by warning them orally and by posting Fumigant Treated Area signs. The signs must bear the skull and cross bones symbol and state

- (1) "DANGER/ PELIGRO,"
- (2) "Area under fumigation, DO NOT ENTER/ NO ENTRE,"
- (3) "Dazomet Fumigant in USE,"
- (4) the date and time of fumigation
- (5) the date and time entry restricted period is over,
- (6) Name of this product, and
- (7) Name, address, and telephone number of the certified applicator in charge of fumigation.

Post the Fumigant Treated Area 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.

Post the Fumigant Treated Area signs at all entrances to the application block (i.e., the greenhouse or field or portion of a field treated with a fumigant in any 24-hour period)."

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.

Protection for handlers

Fumigation handlers: The following activities are prohibited from being performed in the fumigant application block (i.e., the field or portion of a field treated with a fumigant in any 24-hour period) by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in the Worker Protection Standard (40 CFR Part 170), from the start of the application until the entry-restricted period ends. Those activities include those persons:

- Participating in the application as supervisors, loaders, drivers, tractor co-pilots, shovelers, cross ditchers, or as other direct application participants (note: the application starts when the fumigant is first introduced into the soil and ends after the fumigant has stopped being delivered/dispensed to the soil);
- Using devices to take air samples to monitor fumigant air concentrations;
- Persons cleaning up fumigant spills (this does not include emergency personnel not associated with the fumigation application);
- Handling or disposing of fumigant containers;
- Cleaning, handling, adjusting, or repairing the parts of fumigation equipment that may contain fumigant residues;
- Installing, repairing, or operating irrigation equipment in the fumigant application block;

- Entering the application site to perform scouting, crop advising, or monitoring tasks;
 - Installing, perforating (cutting, punching, slicing, poking), removing, repairing, or monitoring tarps:
 - until 14 days after application is complete if tarps are not perforated and removed during those 14 days, or
 - until tarp removal is complete if tarps are **both** perforated **and** removed less than 14 days after application; or
 - until 48 hours after tarp perforation is complete if they will not be removed within 14 days after application.
- Note: see Tarp Perforation and Removal section of this labeling for requirements about when tarps are allowed to be perforated.
- Performing any handling tasks as defined by the WPS.

Supervision of handlers: For all applications from the start of the application until the fumigant has stopped being delivered/dispensed into the soil, i.e., after the soil is sealed, the certified applicator must be at the fumigation site in the line of sight of the application and must directly supervise all persons performing handling activities.

For fumigant handling activities that take place after the fumigant has been delivered/dispensed into the soil until the entry restricted period expires, the certified applicator does not have to be on-site, but must have communicated, in a manner that can be understood by the site owner/operator and handlers responsible for carrying out those activities, the information necessary to comply with the label and procedures described in the FMP (e.g., emergency response plans and procedures).

The results of communication activities must be captured in the FMP.

IMPORTANT: This requirement does not override the requirements in the Worker Protection Standard for Agricultural Pesticides for information exchange between owners/operators of agricultural establishments and commercial pesticide applicators.

The certified applicator must provide [the registrant provided] fumigant safe handling information to each handler involved in the application or confirm that each handler participating in the application has received fumigant safe handling information in the past 12 months.

Exclusion of Non Handlers from Application Block and Buffer Zone: The certified applicator supervising the application and the owner/operator of the establishment where the fumigation is taking place must make sure that all persons who are not trained and PPE-equipped and who are not performing one of the handling tasks defined in this labeling are excluded from application block during the entry-restricted period.

Providing, cleaning, and maintaining PPE: The employer of any handler (as stated in this label) must make sure that all handlers are provided and correctly wear the required PPE. The PPE must be cleaned and maintained as required by the Worker Protection Standard for Agricultural Pesticides.

Respirator availability: At least one handler must have the appropriate respirator and cartridges available and they must be fit-tested, trained, and medically examined.

The employer of any fumigation handler must confirm that an air-purifying respirator and appropriate cartridges of the type specified in the PPE section of this labeling are immediately available for each handler who will wear one.

This must be documented in the FMP.

Respiratory Protection and Stop Work Triggers: The following procedures must be followed to determine whether respiratory protection is required or if operations must cease for any person performing a handling task as stated in this labeling.

- If at any time any handler experiences sensory irritation (tearing, burning of the eyes or nose) then either :
 - An air-purifying respirator must be worn by all handlers who remain in the application block, or
 - Operations must cease and handlers not wearing air-purifying respirator must leave the application block.
- Handlers can remove respirators or resume operations if two consecutive breathing-zone samples taken at the handling site at least 15 minutes apart show that levels of MITC have decreased to less than 600 ppb, provided that handlers do not experience sensory irritation. Samples must be taken where the irritation is first experienced.
- When using monitoring devices to monitor air concentration levels, a direct reading detection device, such as a Draeger or Sensidyne device must be used. The devices must have a sensitivity of at least 600 ppb for MITC.
- When respirators are worn, then air monitoring samples must be collected at least every 2 hours in the breathing zone of a handler performing a representative handling task.
- If at any time: (1) a handler experiences any sensory irritation when wearing a respirator, or (2) an air sample is greater than or equal to 6000 ppb, then all handler activities must cease and handlers must be removed from the application block. If operations cease the emergency plan detailed in the FMP must be implemented.
- Handlers can resume work activities without an air-purifying respirator, if two consecutive breathing zone samples taken at the handling site at least 15 minutes apart show levels of MITC have decreased to less than 600 ppb, provided that handlers do not experience sensory irritation. During the collection of air samples an air-purifying

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respirator must be worn by the handler taking the air samples. Samples must be taken where the irritation is first experienced.

- Work activities can resume if the following conditions exist provided that the appropriate air-purifying respirator is worn:
 - Two consecutive breathing zone samples for MITC taken at the handling site at least 15 minutes apart must be less than 6000 ppb,
 - Handlers do not experience sensory irritation while wearing the air purifying respirator, and
 - Cartridges have been changed.
- During the collection of air samples an air-purifying respirator must be worn by the handler taking the air samples. Samples must be taken where the irritation is first experienced.

Respirator fit testing, medical qualification, and training

Employers must ensure that any handler that uses a respirator is:

- Fit-tested and fit-checked using a program that conforms to OSHA's requirements (see 29 CFR Part 1910.134)
- Trained using a program that conforms to OSHA's requirements (see 29 CFR Part 1910.134) Examined by a qualified medical practitioner to ensure physical ability to safely wear the style of respirator to be worn. A qualified medical practitioner is a physician or other licensed health care professional who will evaluate the ability of a worker to wear a respirator. The initial evaluation consists of a questionnaire that asks about medical conditions (such as a heart condition) that would be problematic for respirator use. If concerns are identified, then additional evaluations, such as a physical exam, might be necessary. The initial evaluation must be done before respirator use begins. Handlers must be reexamined by a qualified medical practitioner if their health status or respirator style or use-conditions change.

Tarp Perforation and/or Removal

IMPORTANT: Persons perforating, repairing, removing, and/or monitoring tarps are defined, within certain time limitations, as handlers (see fumigant handlers as stated in this labeling) and must be provided the PPE and other protections for handlers as required on this labeling and in the Worker Protection Standard for Agricultural Pesticides.

- Tarps must not be perforated until a minimum of 5 days (120 hours) have elapsed after the fumigant injection into the soil is complete (e.g., after injection of the fumigant product and tarps have been laid or after drip lines have been purged and tarps have been laid), unless a weather condition exists which necessitates the need for early perforation or removal. See *Early Tarp Removal for Broadcast Applications Only* and *Early Tarp Perforation for Flood Prevention Activities* sections.
- If tarps will be removed before planting, tarp removal must not begin until at least 2 hours after tarp perforation is complete.
- If tarps will not be removed before planting, planting or transplanting must not begin until at least 48 hours after the tarp perforation is complete.
- If tarps are left intact for a minimum of 14 days after fumigant injection into the soil is complete, planting or transplanting may take place while the tarps are being perforated.
- Each tarp panel used for broadcast fumigation must be perforated.
- Tarps used for fumigations may be perforated manually **ONLY** for the following situations:
 - At the beginning of each row when a coultter blade (or other device which performs similarly) is used on a motorized vehicle such as an ATV.
 - In fields that are 1 acre or less.
 - During flood prevention activities.
- In all other instances tarps must be perforated (cut, punched, poked, or sliced) only by mechanical methods.
- Tarp perforation for broadcast fumigations must be completed before noon.
- For broadcast fumigations tarps must not be perforated if rainfall is expected within 12 hours.
- **Early Tarp Removal for Broadcast Applications Only:**
 - Tarps may be removed before the required 5 days (120 hours) if adverse weather conditions have compromised the integrity of the tarp, provided that the compromised tarp poses a safety hazard. *Adverse weather* includes high wind, hail, or storms that blow tarps off the field and create a hazard, e.g., tarps blowing into power lines and onto roads. A *compromised tarp* is a tarp that due to an adverse weather condition is no longer performing its intended function and is creating a hazard.
 - If tarps are removed before the required 5 days have elapsed due to adverse weather, the events must be documented in the post fumigation summary section of the FMP.
- **Early Tarp Perforation for Flood Prevention Activities**
 - Tarp perforation is allowed before the 5 days (120 hours) have elapsed if rain necessitates field drainage. Tarps must be immediately retucked and packed after soil removal.

Mandatory Good Agricultural Practices (GAPs)

The following GAPs must be followed during all fumigant applications. All measurements and other documentation planned to ensure that the mandatory GAPs are achieved must be recorded in the FMP and/or the post application summary report.

Weather Conditions

- Prior to fumigation the weather forecast for the day of the application and the 48-hour period following the fumigation must be checked to determine if unfavorable weather conditions (*see Identifying Unfavorable Weather Conditions*) exist or are predicted and whether fumigation should proceed.
- Wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach at least 5 mph during the application.
- Do not apply if a shallow, compressed (low-level) temperature inversion is forecast to persist for more than 18 consecutive hours for the 48-hour period after the start of application, or if there is an air-stagnation advisory in effect for the area in which the fumigation is planned.
- Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained on-line at: <http://www.nws.noaa.gov>. For further guidance, contact your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions and cause injury to humans, animals or property. These conditions often exist prior to sunset and continue past sunrise and persist as late as noontime. Unfavorable conditions are common on nights with limited cloud cover and light to no wind and their presence can be indicated by ground fog or smog and can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.

The following requirements may already be on dazomet end use product labels. All of these label statements are required:

- Do not use dazomet when the soil temperature is over 90 deg F, 2" deep.
- Do not apply within 3-4 feet of growing plants or closer than the drop line of trees and large shrubs. If slopes are treated with this product, take precautions to prevent the chemical from washing downward to growing plants.
- The area intended for treatment should be in seedbed condition with a fine tilth, free of clods. Do not apply dazomet to dry or improperly tilled soil. Repeated cultivation before treating will improve control of perennial weeds. Ditching around the site will prevent weed seeds, nematodes, and fungi from washing into the treated area and contaminating it.
- For optimal effect, the soil to be fumigated must have sufficient moisture for good plant growth (at least 50% field capacity) for 5-14 days (depending on temperature) before the treatment.
- Do not apply dazomet if ambient air temperature exceeds 103 degrees F.
- After application, the soil must be kept uniformly moist for 5-7 days. As soon as possible after incorporation, the soil should be sealed to retain the concentration of gases in the soil which can be achieved by:
 - o Compacting the soil surface after incorporation with a roller attached behind the compacting implement.
 - o Moistening the surface after incorporation so a crust forms.
 - o Lightly moistening the soil on the third and fourth days after treatment in case the weather dries out the soil surface to avoid surface cracks.
 - o In difficult situations best results may be obtained by tarping the treated area.
- Do not store dazomet in an open spreader overnight.
- Do not apply dazomet when wind may cause granules to drift from target area.
- Do not apply dazomet through any type of irrigation equipment.

Before using dazomet be aware that the three most critical factors for a successful fumigation program are: soil preparation, soil temperature, and soil moisture.

Site-Specific Fumigation Management Plan (FMP)

Prior to the start of fumigation, the certified applicator supervising the application must verify that a site-specific fumigation management plan (FMP) exists for each application block (i.e., a greenhouse or field or portion of a field treated with a fumigant in any 24-hour period). In addition, an agricultural operation fumigating multiple application blocks may format the FMP in a manner whereby all of the information that is common to all the application blocks is captured once, and any information unique to a particular application block or blocks is captured in subsequent sections.

The FMP must be prepared by the certified applicator, the site owner/operator, registrant, or other party.

The certified applicator must verify in writing (sign and date) that the site-specific FMP(s) reflects current site conditions before the start of fumigation.

Each site specific FMP must contain the following elements:

- ❖ Applicator information (name, phone number, pesticide applicator license number, employer name, employer address, date of completing registrant metam sodium/potassium training program)
- ❖ General site information
 - Application block location (e.g., county, township, range, quadrant), address, or global positioning system (GPS) coordinates
 - Name, address, and, phone number of owner/operator of the application block
- ❖ General application information (target application date/window, brand name of fumigant, EPA registration number)
- ❖ Tarp Information and procedures for repair, perforation and removal (if tarp is used)
 - Brand name, lot number, thickness

- Name and phone number of person responsible for repairing tarps
- Schedule for checking tarps for damage, tears, and other problems
- Maximum time following notification of damage that the person(s) responsible for tarp repair will respond
- Minimum time following application that tarp will be repaired
- Minimum size of damage that will be repaired
- Other factors used to determine when tarp repair will be conducted
- Name and phone number of person responsible for cutting and/or removing tarps (if other than certified applicator)
- Equipment/methods used to cut tarps
- Schedule and target dates for cutting tarps
- Schedule and target dates for removing tarps
- ❖ Soil conditions (description of soil texture in application block, method used to determine soil moisture)
- ❖ Weather conditions (summary of forecasted conditions for the day of the application and the 48-hour period following the fumigant application)
 - Wind speed
 - Inversion conditions (e.g., shallow, compressed (low-level) temperature inversion)
 - Air stagnation advisory
- ❖ Respirators and other personal protective equipment (PPE) for handlers (handler task, protective clothing, respirator type, respirator cartridge type, respirator cartridge replacement schedule, eye protection, gloves, other PPE)
- ❖ Emergency procedures (evacuation routes, locations of telephones, contact information for first responders, local/state/federal/tribal contacts, key personnel and emergency procedures/responsibilities in case of an incident, equipment/tarp/seal failure, complaints, or other emergencies).
- ❖ Fumigant Treated Area posting procedures (person(s) who will post Fumigant Treated Area signs, location of Fumigant Treated Area signs, procedures for Fumigant Treated Area sign removal)
- ❖ Plan describing how communication will take place between applicator, land owner/operator, and other on-site handlers (e.g., tarp cutters/removers, irrigators) for complying with label requirements (e.g., location, timing of tarp cutting and removal, PPE).
 - Name and phone number of persons contacted
 - Date contacted
- ❖ Authorized on-site personnel
 - Name, address, and phone number of handlers
 - Name, address, and phone number for employers of handlers
 - Tasks that each handler is authorized and trained to perform
 - For handlers designated to wear air purifying respirators (an air-purifying respirator is required for a minimum of one handler):
 - date of medical qualification to wear an air-purifying respirator,
 - date of air-purifying respirator training, and
 - date of fit-testing for the air-purifying respirator.
- ❖ Air monitoring Air monitoring plan
 - If sensory irritation is experienced, indicate whether operations will be ceased or operations will continue with an air-purifying respirator
 - If the intention is to cease operations when sensory irritation is experienced, provide the name, address, and phone number of the handler that will perform monitoring activities prior to operations resuming
 - When air-purifying respirators are worn:
 - Representative handler tasks to be monitored
 - Monitoring equipment to be used and timing of monitoring
- ❖ Good Agricultural Practices (GAPs)
 - Description of applicable mandatory GAPs (registrants may also include optional GAPs)
 - Measurements and documentation to ensure GAPs are achieved (e.g., measurement of soil and other site conditions)
- ❖ Description of hazard communication. (The treated area has been posted in accordance with the label. Pesticide product labels and material safety data sheets are on-site and readily available for employees to review.)
- ❖ Record-keeping procedures (the owner/operator of the application block as well as the certified applicator, must keep a signed copy of the site-specific FMP and the post application summary for 2 years from the date of application).

For situations where an initial FMP is developed and certain elements do not change for multiple fumigation sites (e.g. applicator information, authorized on-site personnel, record-keeping procedures, emergency procedures, etc.) only elements that have changed need to be updated in the site-specific FMP provided the following:

- The certified applicator supervising the application has verified that those elements are current and applicable to the application block before it is fumigated .
- Record-keeping requirements are followed for the entire FMP (including elements that do not change).

Once the application begins, the certified applicator must make a copy of the FMP available for viewing by handlers involved in the fumigation. The certified applicator or the owner/operator of the application block must provide a copy of the FMP to any local/state/federal/tribal enforcement personnel who request the FMP. In the case of an emergency, the FMP must be made immediately available when requested by local/state/federal/tribal emergency response and enforcement personnel.

Within 30 days of completing the application portion of the fumigation process, the certified applicator supervising the application must complete a post-fumigation application summary that describes any deviations from FMP that have occurred, measurements taken to comply with GAPs, as well as any complaints and/or incidents that have been reported to him/her.

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The Post-Application Summary must contain the following elements:

- ❖ Actual date of the application, application rate, and size of application block fumigated
- ❖ Summary of weather conditions on the day of the application and during the 48-hour period following the fumigant application
- ❖ Tarp damage and repair information (if applicable)
 - Location and size of tarp damage
 - Description of tarp/tarp seal/tarp equipment failure
 - Date and time of tarp repair
- ❖ Tarp perforation/removal details (if applicable)
 - Description of tarp removal (if different than in the FMP)
 - Date tarps were perforated
 - Date tarps were removed
- ❖ Complaint details (if applicable)
 - Person filing complaint (e.g., on-site handler, person off-site)
 - If off-site person, name, address, and phone number of person filing complaint
 - Description of control measures or emergency procedures followed after complaint
- ❖ Description of incidents, equipment failure, or other emergency and emergency procedures followed (if applicable)
- ❖ Details of elevated air concentrations monitored on-site (if applicable)
 - Location of elevated air concentration levels
 - Description of control measures or emergency procedures followed
 - Air monitoring results
 - When sensory irritation experienced:
 - Date and time of sensory irritation
 - Handler task/activity
 - Handler location where irritation was observed
 - Resulting action (e.g., cease operations, continue operations with air-purifying respirators)
 - When using a direct read instrument:
 - Sample date and time
 - Handler task/activity
 - Handler location
 - Air concentration
 - Sampling method
- ❖ Date of Fumigant Treated Area sign removal
- ❖ Any deviations from the FMP

Record-keeping procedures (the owner/operator of the application block as well as the certified applicator must keep a signed copy of the post-application summary for 2 years from the date of application).

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.

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- 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**.

Maximum Application Rates for Pre-Plant Soil Fumigation
<p>Maximum incorporated rate for all uses, except for golf course renovation, is 425 lbs ai/A. The maximum rate for golf course fairways, with the incorporated application method, is 530 lbs ai/A</p> <p>Application with handheld equipment is prohibited.</p>

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 ¹	10 – 13	6 – 8	260 – 350	5 – 7	
To control weeds ²	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 ³	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 ⁴	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

Requirements for Pre-Plant Greenhouse Soil Fumigations: The maximum area that can be treated is 50,000 square feet.

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 polyethylene 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.

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PESTS LISTED ON THIS LABEL

Table 5. Germinating Seeds of Annual and Perennial Weeds

Common Name	Scientific Name
Barnyardgrass	<i>Echinochloa crus-galli</i>
Birdweed	<i>Convolvulus arvensis</i>
Blackgrass	<i>Alopecurus myosuroides</i>
Bristlegrass	<i>Setraia spp.</i>
Buckwheat, Wild	<i>Polygonum convulvulus</i>
Callalily, Brazil	<i>Richardia brasiliensis</i>
Chamomile, Wild	<i>Matricaria chamomilla</i>
Chickweed, Common	<i>Stellaria media</i>
Chickweed, Mouseeared	<i>Cerastium vulgatum</i>
Cinquefoil, Rough	<i>Potentilla norvegica</i>
Cleavers	<i>Centurea cyanus</i>
Clover	<i>Trifolium spp.</i>
Cocksfoot	<i>Dactylus glomerata</i>
Corn Flower	<i>Galium aparine</i>
Crabgrass, Large	<i>Digitaria sanguinalis</i>
Crabgrass, Smooth	<i>Digitaria ischceumum</i>
Cress, Hoary	<i>Cardaria draba</i>
Dock, Broadleaved	<i>Rumex obtusifolius</i>
Fescue, Tall	<i>Festuca arundinacea</i>
Foxtail, Short-tailed	<i>Alopecurus aequalis</i>
Fumitory, Common	<i>Fumaria officinalis</i>
Galinsoga, Small-flowered	<i>Galinsoga parviflora</i>
Groundsel	<i>Senecio vulgatum</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, Corn	<i>Chrysanthemum segetum</i>
Marigold, Dwarf	<i>Schkuhria pinnata</i>
Meadowgrass, Annual (aka Annual Bluegrass)	<i>Poa annua</i>
Medic	<i>Medicago spp.</i>
Mustard, Wild	<i>Brassica kaber</i>
Nettle, Small	<i>Urtica urens</i>
Nettle, Stinging	<i>Urtica dioica</i>
Nightshade, Black	<i>Solanum nigrum</i>
Oats, Wild	<i>Avena fatua</i>
Pennycress, Field	<i>Thlapsi arvense</i>
Pigweed, Smooth	<i>Amaranthus spp.</i>
Purslane, Common	<i>Portulaca oleracea</i>
Quackgrass	<i>Agropyron repens</i>
Radish, Wild	<i>Raphanus raphanistrum</i>
Rapeseed	<i>Brassica spp.</i>
Sedges	<i>Cyperus spp.</i>
Shepardspurse	<i>Capsella bursa-pastosis</i>
Silver leaf	<i>Stereum purpureum</i>
Smartweed, Pale	<i>Polygonum lapatifoilum</i>
Spurge, Sun	<i>Euphorbia helioscopia</i>
Vetch, Tufted	<i>Vicia cracca</i>
Witchweed	<i>Striga asiatica</i>
Yellowrocket	<i>Barbarea vulgaris</i>

Table 6. Root Propagated Weeds

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

Table 7. Parasitic weeds

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

Table 8. Plant-parasitic nematodes

Common Name	Scientific Name
Cyst-forming root nematodes	
Nematode, Beet Cyst	<i>Heterodera schachtii</i>
Nematode, Pea Cyst	<i>Heterodera goettingia</i>
Nematode, Yellow (Golden) Potato Cyst	<i>Globodera rostochiensis</i>
Free-living (migratory) root nematodes	
Nematode, Dagger	<i>Rotylenchus spp.</i>
Nematode, Lance	<i>Hoplolaimus spp.</i>
Nematode, Root	<i>Tylenchus spp.</i>
Nematode, Spiral	<i>Tylenchorrhynchus spp.</i>
Nematode, Stunt	<i>Xiphinema spp.</i>
Root knot nematodes	
Nematode, Root Knot	<i>Meloidogyne spp.</i>
Stem and leaf nematodes	
Nematode, Stem and Bulb	<i>Ditylenchus dipsaci</i>

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Table 9. Soil-borne Fungi

Common Name	Scientific Name
Blights	
Blossom blight	<i>Choanephora cucurbitarum</i>
Early blight	<i>Alternaria solani</i>
Molds	
Black mold	<i>Aspergillus niger</i>
Black mold	<i>Cladosporium herbarum</i>
Citrus molds	<i>Penicillium spp</i>
Grey mold	<i>Botrytis spp.</i>
Molds	<i>Mucor circinelloides</i>
White mold	<i>Streptomves spp.</i>
Spots	
Eyespot	<i>Cercospora spp.</i>
Root Diseases	
Club root	<i>Plasmodiophora brassicae</i>
Corky root of tomato	<i>Pyrenochaeta lycopersici</i>
Root diseases	<i>Rhizoctonia spp.</i>
Root diseases	<i>Rosellinia spp.</i>
Rots	
Bitter rot	<i>Gloeosporium fructigenum</i>
Blackroot rot	<i>Macrophomina phaseolina</i>
Blackroot rot	<i>Phomopsis sclerotoides</i>
Blackroot rot	<i>Thielaviopsis basicola</i>
Buttrot	<i>Fomes spp.</i>
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 spp.</i>
Fruit rot	<i>Didymella lycopersici</i>
Fruit rot	<i>Choanephora cucurbitarum</i>
Heart rot	<i>Fomes spp.</i>
Root rot	<i>Aphanomyces spp.</i>
Root rot	<i>Helicobasidium mompa</i>
Root rot	<i>Sclerotium spp.</i>
Root rots	<i>Phytophthora spp.</i>
Root rots, melon	<i>Monosporascus cannonballus</i>
Sclerotinia softrots	<i>Sclerotinia spp.</i>
Soft rot	<i>Rhizopus spp.</i>
Tomato stem rot	<i>Didymella lycopersici</i>
White rot	<i>Sclerotium cepivorum</i>
Wilts	
Wilt disease	<i>Verticillium spp.</i>
Wilts	<i>Phialophora spp.</i>
Others	
Blackleg	<i>Phoma spp.</i>
Damping off	<i>Pythium spp.</i>
Mushroom pathogen	<i>Myriococcum spp.</i>
Mushroom pathogen	<i>Thielavia spp.</i>
Mushroom pathogen	<i>Diehlomyces microsporus</i>
Silver leaf	<i>Stereum purpureum</i>
Soil pathogen	<i>Chaetomium spp.</i>
Soil pathogen	<i>Clomerella cingulata</i>

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Soil pathogen	<i>Collectotrichum spp.</i>
Soil pathogen	<i>Cylindrocarpon spp.</i>
Soil pathogen	<i>Nigrospora sacchan</i>
Soil pathogen	<i>Sporotrichum spinulosum</i>
Soil pathogen	<i>Stemphylium radicinum</i>

Table 10. Soil-borne Bacteria

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

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:

• **Paper and Plastic Bag Containers:**

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.

In Case of Emergency

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

CHEMTEL 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.

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ACCEPTED
with **COMMENTS**
In EPA Letter Dated
APR 30 2010

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

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