EPA Reg. No. 61842-6
Vol. 2

Material Sent for Data Extraction

Reg. # 61842-6

Description: _____

☐ Material(s) Sent to Data Extraction Contractors:

- ☑ New Stamped Label Dated 12/27/11
- ☐ Notification Dated _____
- ☐ New CSF(s) Dated _____
- ☐ Other: _____

☐ Decision #: 459138

☐ Other Action/Comments: RED PHASE 2 : FUMIGANTS

File this coversheet and attached materials in the jacket. It must be well organized and clipped together, NOT STAPLED. Then give the jacket with the coversheet and materials to staff in the Information Services Center (ISC) (Room S-4900). If a jacket is full or only available as an image, please file materials in a new jacket and bring it down to the (ISC). For further information please call 703-605-0716.

Reviewer: Erin Malone

Phone: 347-0253 Division: RD/FB

Date: 2/9/12

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

DEC 27 2011

Dawn Kominski
Tessenderlo-Kerley, Inc.
2255 N. 44th Street, Suite 300
Phoenix, AZ 85008-3279

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Subject: SECTAGON-42
EPA Reg. No. 61842-6
Phase 2 RED Mitigation Amendment Label Dated May 31, 2011
EPA Decision Number 459138

Dear Ms. Kominski:

The amended label referred to above, submitted in connection with reregistration of metam sodium 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 REVISION

1. Page 6 - Under the "Supervision of Handlers" section, bold the title "**Fumigant Safe Handling Information**" each time it appears in the last paragraph.

2. Page 7 – Under Respiratory Protection and Stop Work Triggers, delete the underscore after the parentheses in the first paragraph.

3. Page 17-18 - Under Calculating the Broadcast Equivalent Application Rate, replace the gray images with black & white images.

4. Page 20 -31 - The minimum font size for the entire labeling is 12 pt. Make sure the buffer zone tables meet this requirement.

5. Page 32 - Under "Restrictions for Difficult to Evacuate Sites," reformat the section like this:

   "Difficult to evacuate sites are pre-K to grade 12 schools, state licensed daycare centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons.

- No fumigant application with a buffer zone greater than 300 feet is permitted within 1/4 mile (1320 feet) of difficult to evacuate sites unless the site is not occupied by children from state-licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36-hour period following the end of the application.
- No fumigant application with a buffer zone of 300 feet or less is permitted within 1/8 mile (660 feet) of difficult to evacuate sites unless the site is not occupied by children from state-licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36-hour period following the end of the application."

6. Page 39 – Increase the font size to a minimum of 12 point in the text box for "Conditions of Sales and Warranty."

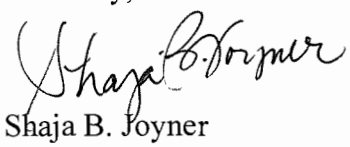
CONDITIONS

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 (released for shipment) by its registrant after December 1, 2012. 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, 2012, deadline because of any failure to obtain state approvals.

2. Submit one copy of the final printed label that incorporates the required changes before the product is released for shipment.

One copy of the label stamped "Accepted with comments" is enclosed for your records. If you have any questions, please contact Jose Gayoso by phone at (703) 347-8652 or via email at gayoso.jose@epa.gov or Shaja Joyner by phone at (703) 308-3194 or email at joyner.shaja@epa.gov.

Sincerely,



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

NovaSource®
Tessenderlo Group

ACCEPTED
with COMMENTS
In EPA Letter Dated
DEC 27 2011
Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 61842-6

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.

Sectagon – 42®

Agricultural Fumigant

FUMIGANT SOLUTION FOR SPECIFIC CROPS AS LISTED IN THIS LABEL
For suppression of: Nematodes, Fungi, Bacteria, Weeds, Weed seeds and Volunteer seeds.
42.2% SODIUM METHYLDITHIOCARBAMATE

ACTIVE INGREDIENT:
Sodium methyldithiocarbamate (anhydrous)] 42.2%
OTHER INGREDIENTS: 57.8%
TOTAL: 100.0%
Contains 4.22 lbs. active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

DANGER PELIGRO

READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH LABEL WARNINGS AND DIRECTIONS
Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

FIRST AID	
If 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 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 treatment advice.
If swallowed:	• Call 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 or doctor. • Do not give anything by mouth to an unconscious person.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-866-374-1975 for emergency medical treatment information.	
NOTE TO PHYSICIAN	
Probable mucousal damage may contraindicate the use of gastric lavage.	

EPA Reg. No. 61842-6 **EPA Est. No. 61842-ID-001** **EPA Est. No. 61842-WA-002**

Manufactured by:
Tessenderlo Kerley, Inc.
2255 N. 44th Street, Suite 300
Phoenix, AZ 85008 USA
1-800-525-2803

NSFSPUS0710

Net Contents:

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PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER

- Corrosive: causes skin damage. May be fatal if absorbed through the skin. Do not get on skin or clothing.
- Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals.
- Harmful if swallowed.
- Harmful if inhaled. Irritating to eyes, nose, and throat. Avoid breathing vapor or spray mist.
- Irritating to eyes. Do not get in eyes.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are barrier laminate or viton ≥ 14 mils. For more options, follow the instructions for category H on the chemical-resistance category selection chart.

Handlers applying via weed sprayer (see *Terms used in this labeling* section) while irrigation system is operating or handlers who may be exposed to liquid spray while repairing a malfunctioning chemigation system or shutting off equipment must wear:

- chemical-resistant coveralls over long-sleeve shirt and long pants,
- chemical-resistant gloves,
- chemical-resistant footwear plus socks,
- chemical-resistant headgear, and
- respirator of the type specified in the respiratory protection section in the PPE requirements on this label.

Handlers wearing chemical-resistant attire are limited to 30 minutes of exposure in any 60 minute period to prevent heat illness, and, as required by the Worker Protection Standard for Agricultural Pesticides, employers of these handlers must take any necessary steps to avoid heat illness.

Except as required above, handlers transferring or loading liquid formulations, handlers operating motorized ground equipment with open cabs, handlers repairing or inactivating irrigation or chemigation equipment during application, and handlers cleaning up spills or equipment, must wear:

- coveralls over long-sleeve shirt and long pants,
- chemical resistant gloves,
- chemical resistant footwear plus socks,
- chemical-resistant apron if transferring or loading the fumigant or cleaning up spills or equipment,
- protective eyewear, and
- respirator of the type specified in the PPE requirements for respiratory protection section in the PPE requirements on this label if triggered.

All other handlers including handlers operating motorized ground equipment with closed cabs (except for handlers who set up and calibrate chemigation and irrigation equipment and start the application from inside the application block) as stated in this labeling must wear:

- long-sleeve shirt and long pants,
- shoes plus socks, and
- respirator of the type specified in the respiratory protection section in the PPE requirements on this label if triggered.

All handlers who set-up and calibrate chemigation and irrigation equipment and start the application from inside the application block must wear:

- long-sleeve shirt and long pants,
- shoes plus socks,
- protective eyewear, and
- respirator of the type specified in the respiratory protection section in the PPE requirements on this label if triggered.

PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR RESPIRATORY PROTECTION

When an air-purifying respirator is required under this label's Directions for Use, Protection for Handlers, Respiratory Protection and/or Stop Work Triggers section, handlers must wear at minimum either:

- A NIOSH-certified full-facepiece air-purifying respirator equipped with an organic vapor (OV, NIOSH approval prefix TC-23C) cartridge and a particulate prefilter (Type N, R, P, or HE NIOSH approval number prefix TC-84A) or
  - a gas mask with a canister approved for organic vapor (NIOSH approval number prefix TC-14G).

Cartridges or canisters must be replaced when odor or sensory irritation from this product becomes apparent during use, if the measured concentration of MITC is greater than 6000 ppb (6 ppm), or in the absence of any other instructions or indications of service life, at the end of each day's work period, whichever occurs first.

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.

DO NOT transport contaminated clothing inside a closed vehicle unless stored in a sealed container. Wash or dispose as specified.

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 mammals, birds, aquatic invertebrates and fish. 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 wash waters or rinsate.

Metam-sodium has certain properties and characteristics in common with chemicals that have been detected in groundwater (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.

USE PRECAUTIONS

Keep off desirable lawns and plants. Do not apply within 3 feet of the drip line of desirable plants, shrubs or trees. Do not use in confined areas without adequate ventilation OR where fumes may enter nearby dwellings. Do not use in greenhouses. Keep container tightly closed when not in use. Do not store near feed or food.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in a cool, dry place, keep container closed when not in use. Do not store below 0° F. Product crystallizes at lower temperatures. Warm or store at higher temperatures and mix to redissolve crystals and assure uniformity before use.

Do not stack more than three drums high. Leaking or damaged drums should be placed in overpack drums for disposal. Spills should be absorbed in sawdust or sand and disposed of in a sanitary landfill. Keep container closed when not in use.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instruction, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: [NON-REFILLABLE CONTAINERS] Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinse into application equipment or a mix tank or store rinsate for later use or disposal. Then offer for recycling if available 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.

[REFILLABLE CONTAINERS]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available 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.

NOTE OF WARNING: CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER!

DIRECTIONS FOR USE
Restricted Use Pesticide

For suppression of: Nematodes, Fungi, Bacteria, Weeds, Weed seeds and Volunteer seeds.

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. Do not apply when wind speed favors drift beyond the area intended for treatment. Only handlers may be in the application block from the start of the application until the entry restricted period ends, and in the buffer zone during the buffer zone period. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

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 agriculture workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. For 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).

PPE For Entry During the Entry-Restricted Period: PPE for entry that is permitted by this labeling is listed in the *Personal Protective Equipment (PPE)* section of this labeling.

TERMS USED IN THIS LABELING

Soil Fumigant Training Program: Certified applicator training that provides information on (1) how to correctly apply the fumigant, including how to comply with new label requirements; (2) how to protect handlers and bystanders; (3) how to determine buffer zone distances; (4) how to complete an FMP and the post-application summary; (5) how to determine when weather and other site-specific factors are not favorable for fumigant application; (6) how to comply with required GAPs and how to document compliance with GAPs in the FMP; and (7) how to develop and implement emergency response plans.

Fumigant Safe Handling Information: Information that must be provided annually to handlers that must include the following: (1) what fumigants are and how they work, (2) safe application and handling of soil fumigants, (3) air monitoring and respiratory protection requirements for handlers, (4) early signs and symptoms of exposure, (5) appropriate steps to take to mitigate exposures, (6) what to do in case of an emergency, and (7) how to report incidents.

Application Block: Area within the perimeter of the fumigated portion of a field (including furrows, irrigation ditches, roadways). The perimeter of the application block is the border that connects the outermost edges of total area treated with the fumigant product.

Application Rate: The ratio of fumigant mass applied compared to the soil surface area (e.g., lbs of product per acre). The application rate is expressed on this labeling in terms of either the "treated area application rate" or the "broadcast equivalent application rate." The "treated area application rate" relates to only the rate of fumigant applied to the portion of the field that is fumigated (e.g., rate within the bed or strips). The "broadcast equivalent application rate" relates to the rate of fumigant applied within the entire perimeter of the application block. For bedded and strip applications, the "broadcast equivalent application rate" must be calculated to determine the buffer zone distance required by this labeling.

Start of the Application: The time at which the fumigant is first delivered/dispensed into the soil in the application block.

Application is Complete: The time at which the fumigant has stopped being delivered/dispensed into the soil and the soil has been sealed; drip lines have been purged (if applicable). For applications with water seals, the application is complete at the time at which the fumigant has stopped being delivered/dispensed into the soil.

Entry Restricted Period: This period begins at the start of the application and expires depending on the application method and if tarps are used when the tarps are perforated and removed. Entry into the application block during this period is only allowed for appropriately PPE-equipped handlers performing handling tasks. See the *Entry Restricted Period and Notification* section for additional information.

Buffer Zone: An area established around the perimeter of each application block. The buffer zone must extend outward from the edge of the application block perimeter equally in all directions.

Buffer Zone Period: Begins at the start of the application and lasts for a minimum of 48-hours after the application is complete. Non-handlers must be excluded from the buffer zone during the buffer zone period.

Difficult to Evacuate Sites: Pre-K to Grade 12 schools, state licensed daycare centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons.

Owner: Any person who has a present possessory interest (fee, leasehold, rental, or other) in an agricultural establishment. A person who has both leased such agricultural establishment to another person and granted that same person the right and full authority to manage and govern the use of such agricultural establishment is not an owner. See definition of "owner" in WPS (40 CFR §170.3).

Roadway: Portion of a street or highway improved, designed or ordinarily used for vehicular travel, exclusive of the sidewalk or shoulder even if such sidewalk or shoulder is used by persons riding bicycles. In the event a highway includes two or more separated roadways, the term *roadway* shall refer to any such roadway separately.

Representative Handling Task: For air monitoring, the locations and handler activities sampled must represent each handler's exposure occurring within the application block. For example, for an application consisting of a seven-handler crew (1 tractor driver, 1 tractor co-pilot, 4 shovelers, and 1 certified applicator supervising) two breathing zone samples could be collected: one sample for the tractor co-pilot and one sample for a downwind shoveler. Results of previous sampling may indicate which tasks and locations are worst case and therefore representative of all handlers.

High Release Height Center Pivot or Lateral Move Irrigation Applications: (1) Release height OR spray height greater than 8 feet, and (2) there is greater than 30 lbs. PSI at the sprinkler head.

Medium Release Height Center Pivot or Lateral Move Irrigation Applications: (1) Release height AND spray height is less than 8 feet, AND (2) 29 lbs. or less PSI at the sprinkler head, AND (3) there are no end guns.

Low Release Height-Solid Stream Center Pivot or Lateral Move Irrigation Applications: (1) Release height and spray height is less than 4 feet, AND (2) 29 lbs. or less PSI at the sprinkler head, AND (3) application system produces a solid stream, and (4) there are no end guns.

Solid Stream: An uninterrupted liquid stream that remains generally as a coarse flow until contacting the intended target. An example of a solid stream application is Smart Drop®, also known as drizzle boom. Any application system that employs sprayheads or nozzles with moving parts that produce a rotating or oscillating spray pattern (e.g., rotators, spinner, nutators, and wobblers) or that otherwise break up the stream into droplets does not qualify as a solid stream nozzle.

Weed Sprayer: In this labeling, weed sprayer refers to a tank that holds 100-500 gallons combined with an off-set spray boom that creates a

swath about 4 feet on each side of an orchard tree row, leaving the untreated grassy middle to grow.

USE SITES

Only for use on the following:

Cover crops (i.e., crops planted between periods of regular crop production to prevent soil erosion);

Crops grown solely for seed;

As well as (in alphabetical order):
alfalfa; amaranth (including leafy amaranth, Chinese spinach, tampala); anise; apple (including balsam, crabapple); apricot; artichokes; arugula (roquette); asparagus (nursery production only); barley; basil; beans (including: lima, green, fava, seed beans); beet (including garden);
berry (including black satin berry, blackberry, blueberry, boysenberry, chesterberry, lowberry, wild raspberry, youngberry, darrowberry, dewberry, cloudberry, elderberry, Cherokee blackberry, coryberry, European barberry, huckleberry, hullberry, gooseberry, cranberry, highbush cranberry, Himalayaberry, jostaberry, juneberry, Saskatoon berry, lingonberry, loganberry, lavacaberry, lucretiaberry, mammoth blackberry, marionberry, bingleberry, mountain pepper berries, mulberry, olallieberry, dirksen thornless berry, nectarberry, Oregon evergreen berry, partridgeberry, phenomenalberry, rangeberry, raspberry (black and red), ravenberry, riberry, rossberry, schisandra berry, serviceberry, Shawnee blackberry, strawberry)
bok choy; broccoli; brussels sprouts; cabbage (including Napa); calabaza; calamondin; cardoon; carrot; casaba; cauliflower; celeriac; celery (including: Chinese); celtuce; chayote (fruit); che; cherry (including: sweet and tart, chokecherry, pincherry); chervil; cheyenne; Chilean guava; Chinese greens; Chinese okra; Chinese waxgourd (Chinese preserving melon); chinquapin; chironja; chrysanthemum; cilantro; citrus citron; citrus hybrids; collard; corn salad; corn; cotton; cress (including: upland, yellow rocket, winter cress); cucumber (including: Chinese cucumber); cucuzza; currant, (including: black, red, native and other varieties and hybrids);
dandelion; dill; dock (sorrel); eggplant; endive (escarole); fennel, Florence (finochio); forest seedlings; garland; garlic; gherkin; ginger; gourd; grape; grapefruit; hechima; herbs (all); honey balls; honeysuckle; hyotan; kale; kiwifruit (including: fuzzy and hard); kohlrabi; kumquat; leek; lemon; lettuce (including: head and leaf); lime; loquat; mandarin (incluing: tangerine and satsuma); mango; mayhaw; maypop;
melon (including: bitter melon, cantaloupe, hybrids and/or cultivars, citron melon, Crenshaw melon, golden pershaw melon, mango melon, honeydew melon, muskmelon, Persian melon, pineapple melon, Santa Claus melon, snake melon, watermelon);
mint; muntries; mustard; nectarine; nursery stock (fruit seedlings and rose bushes only); nursery tree crops (including crops like maple, ash, dogwood);
nut (including: almond, beech nut, cashew, chestnut, hickory nut, Brazil nut, macadamia nut (bush nut), filbert (hazelnut), pecan, pistachio, walnut (black and English/Persian); onion; orach; orange (including: sour an sweet); ornamentals; parsley; peas (including: English and garden); peach; peanut; pear (including: oriental and balsam); pepper; phalsa; plum (including: Chickasaw and Damson); plumcot; potato; prune (fresh); pummelo; pumpkin; purslane (including: garden and winter); quince;
radicchio (red chicory); radish (including Oriental); rappini; rhubarb; rye; salal; sea buckthorn; soybean; spinach (including: New Zealand, Malabar, Indian); squash, (including: summer, winter, butternut, straightneck, Acorn, crookneck, hubbard, scallop, spaghetti); sugar beet; sweet potato; swiss chard; tangelo; tangor; tobacco; tomatoes; tree nuts (orchard replant only); turf (including golf courses); turnip; vegetable marrow; wheat; yams; zucchini.
Use only according to label. Do not apply this product through any irrigation system unless the labeling on chemigation is followed.

USE METHOD RESTRICTIONS

The use of this product is restricted to the methods described in this label. Use in greenhouses or any other enclosed structure or confined area is prohibited. Application with handheld equipment is prohibited. Application with cement grinder and shredder equipment is prohibited. Open-pour applications are prohibited. Do not apply this product through traveler or big gun application systems.

CERTIFIED APPLICATOR TRAINING

Any certified applicator supervising a soil fumigant application must have successfully completed one of the soil fumigant training programs listed on the following EPA website http://www.epa.gov/fumiganttraining for the active ingredient(s) in this product. The training must be completed in the time frames listed on the website. The FMP must document the date and location where the soil fumigant training program was completed.

HANDLERS

The following activities are prohibited from being performed by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in WPS (40 CFR Part 170):

- Monitoring fumigant air concentrations;
- 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; and
- Performing any handling tasks as defined by the WPS (40 CFR 170).

The following activities are prohibited from being performed in the application block from the start of the application until the entry-restricted period ends and in the buffer zone during the buffer zone period by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in the WPS (40 CFR Part 170), (NOTE: persons repairing, and monitoring tarps are considered handlers for the duration listed below). Prohibited activities (except for trained and equipped handlers) include:

- Participating in the application as supervisors, loaders, drivers, tractor co-pilots, shovelers, cross ditchers, or as other direct application participants;
- Installing, repairing, operating or removing irrigation equipment;
- Performing scouting, crop advising, or monitoring tasks;
- Installing, perforating (cutting, punching, slicing, poking), or removing tarps; and
  - Repairing or monitoring tarps until 14 days after application is complete if tarps are not perforated and removed during those 14 days. **NOTE:** see *Tarp Perforation and/or Removal* section on this labeling for requirements about when tarps are allowed to be perforated.

Handlers do not include local, state, or federal officials performing inspection, sampling, or other similar official duties.

PROTECTION FOR HANDLERS

Supervision of Handlers

For all applications except water run: from the start of the application until the application is complete, a certified applicator must be at the application block in the line of sight of the application and must directly supervise all persons performing handling activities.
For water-run applications (e.g., sprinkler/chemigation, wheel line, center pivot, lateral move, drip, flood, etc.), a certified applicator must be in the line of sight of the application at the start of the application including set-up, calibration, and initiation of the application. A certified applicator may leave but must return at least every two hours to visually inspect the equipment to ensure proper functioning and must directly supervise all Worker Protection Standard trained handlers until the application is complete. Worker Protection Standard-trained handlers may perform the monitoring functions in place of a certified applicator but they must be under the supervision of a certified applicator and be able to communicate with a certified applicator at all times during monitoring activities via cell phone or other means.
For handling activities that take place after the application is complete until the entry restricted period expires, the certified applicator is not required to be on-site, but must have communicated in a manner that can be understood by the site owner 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).
IMPORTANT: This requirement does not override the requirements in the Worker Protection Standard for Agricultural Pesticides for information exchange between operators of agricultural establishments and commercial pesticide applicators.
The certified applicator must provide Fumigant Safe Handling Information to each handler or confirm that within the past 12 months, each handler has received Fumigant Safe Handling Information in a manner he/she can

understand. Fumigant Safe Handling Information will be provided where this product is purchased or at www.epa.gov/fumiganttraining.

Exclusion of Non-Handlers from the Application Block and Buffer Zone

The certified applicator supervising the application and the owner of the establishment where the application 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 as stated in this labeling are:

- excluded from application block during the entry restricted period, and.
- excluded from the buffer zone during the buffer zone period (see buffer zone exemption for transit on roadways in Buffer Zone Requirements section).

Local, state, or federal officials performing inspection, sampling, or other similar official duties are not excluded from the application block or the buffer zone by this labeling. The certified applicator supervising the application and the owner of the establishment where the application is taking place are not authorized to, or responsible for, excluding those officials from the application block or the buffer zone.

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.

Air-purifying Respirator Availability

The employer of any 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. At least one handler must have the appropriate air-purifying respirator and cartridges available (see *Respirator Fit Testing, Medical Qualification, and Training* section for additional requirements).

Exception: Air-purifying respirators do not need to be made available for handlers performing fumigant site monitoring tasks outside of the buffer zone.

Respirator Fit Testing, Medical Qualification, and Training

Using a program that conforms to OSHA's requirements (see 29 CFR Part 1910.134), employers must verify that any handler that uses a respirator is:

- Fit-tested and fit-checked,
- Trained, and
- 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 these requirements.

Respiratory Protection and Stop Work Triggers

The following procedures must be followed to determine whether an air-purifying respirator is required or if operations must cease for any person performing a handling task (except for fumigant site monitoring outside of the buffer zone) as stated in this label.

- 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 surrounding buffer zone, or
  - Operations must cease and handlers not wearing an air-purifying respirator must leave the application block and surrounding buffer zone.
- Handlers can remove air-purifying 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 (0.6 ppm), provided that handlers do not experience sensory irritation.
- During the collection of air samples, an air-purifying respirator must be worn by the handler taking the air samples. Samples must be taken at the location where the irritation was first experienced.When using monitoring devices to monitor air concentration levels, a direct read detection device, such as an electronic device or a colorimetric device (e.g. Draeger, Sensidyne) must be used. The devices must have sensitivity of at least 600 ppb (0.6 ppm) for MITC. Persons using direct read detection devices must follow the manufacturer's directions.
- When breathing zone samples are required, they must be taken outside respiratory protection equipment and within a ten inch radius of the handler's nose and mouth.
- When air-purifying respirators are worn, 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 an air-purifying respirator, or (2) a MITC air sample is greater than or equal to 6,000 ppb (6 ppm), then all handler activities must cease and handlers must be removed from the application block and surrounding buffer zone.
- Handlers can resume work activities without air-purifying respirators 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 (0.6 ppm), provided that handlers do not experience sensory irritation. During the collection of air samples an air-purifying respirator must be worn by the handler taking the air samples. Samples must be taken at the location where the irritation was first experienced or where sample(s) were greater than or equal to 6000 ppb (6 ppm).
- Handlers can resume work activities if all 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 6,000 ppb (6 ppm),
  - Handlers do not experience sensory irritation while wearing the air-purifying respirator, and
  - Filter cartridges/canisters 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 at the location where the irritation was first experienced or where sample(s) were greater than or equal to 6000 ppb (6 ppm).

TARP PERFORATION AND/OR REMOVAL

IMPORTANT: Persons perforating, repairing, removing, and/or monitoring tarps are defined, within certain time limitations, as handlers (see *Handlers* section), and they 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 application is complete, 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 during Flood Prevention Activities for Bedded Applications Only* requirements).
- If tarps are perforated within 14 days after the application is complete, tarp removal must not begin until at least 2 hours after tarp perforation is complete.
- If tarps are perforated but not removed within 14 days after the application is complete, planting or transplanting must not begin until at least 48 hours after the tarp perforation is complete.
- If tarps are not perforated or removed within 14 days after the application 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 may be perforated manually ONLY for the following situations:
  - At the beginning of each row when a coulter 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.
- Early Tarp Perforation during Flood Prevention Activities for Bedded Applications Only:
  - Tarp perforation is allowed before the 5 days (120 hours) have elapsed.
  - Tarps must be immediately retucked and packed after soil removal.

ENTRY RESTRICTED PERIOD AND NOTIFICATION

Entry Restricted Period

Entry into the application block (including early entry that would otherwise be permitted under the Worker Protection Standard) 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 after the application is complete, or
- 48 hours after tarps perforation is complete if tarps will be perforated within 14 days after the application is complete and will not be removed for at least 14 days after the application is complete, or
- Tarp removal is completed if tarps are both perforated and removed less than 14 days after the application is complete.

NOTES:

- See *Tarp Perforation and/or Removal* section on this labeling for requirements about when tarps are allowed to be perforated.
- If early tarp removal occurs for a broadcast application the entry restricted period is a minimum of 5 days after the application is complete.
- When listing application information for soil fumigant applications to comply with Part 170.122 of the WPS, list the entry restricted period time frame in place of the REI.

Notification

Notify workers of the application by warning them orally and by posting Fumigant Treated Area signs.

The signs must bear the skull and crossbones symbol and state:

- "DANGER/PELIGRO,"
- "Area under fumigation, DO NOT ENTER/NO ENTRE,"
- Metam Sodium fumigation in Use."
- The date and time of fumigation,
- The date and time the entry restricted period is over,
- "Sectagon 42", and
- Name, address, and telephone number of the certified applicator in charge of the fumigation.

Post Fumigant Treated Area sign instead of the Worker Protection Standard sign for this application but follow all Worker Protection Standard requirements pertaining to location, legibility, text size, and sign size (40 CFR § 170.120).

Post the Fumigant Treated Area signs at all entrances to the application block no sooner than 24 hours prior to application.

Fumigant Treated Area signs must remain posted for no less than the duration of the entry restricted period.

Fumigant Treated Area signs must be removed within 3 days after the end of the entry restricted period.

MANDATORY GOOD AGRICULTURAL PRACTICES (GAPs)

The following GAPs must be followed during all fumigant applications.

Shank Applications

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist within an hour prior to sunset and continue past sunrise and may 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.

Soil Conditions, Injection Depth, and Soil Sealing

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

The injection point for bedded and broadcast shank injection applications shall be a minimum of 3 inches from the final soil/air interface. Chisel traces must be eliminated following an application and the soil surface must be sealed immediately after application using one or more of the following methods:

- Compaction with a bed-shaper, roller, press wheel, coil packer, ring packer, or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a ¼-inch of water beginning immediately after application begins and completing the water treatment within four hours, OR
- Covering treated area with a tarp.

Tarps (when tarps are used in Sectagon 42 applications)

- A written tarp plan must be developed and included in the FMP
- Once a tarp is perforated, the application is no longer considered tarped.
- Tarps must be installed immediately after the fumigant is applied to the soil.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in

the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed available water capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For **coarse** textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

- Do not apply or allow fumigant spill onto the soil surface. Injectors must be placed below the soil surface before product flow begins. Each injection line must either have a check valve located as close as possible to the final injection point, or drain/purge the line of any remaining fumigant prior to lifting injection shanks from the ground. Do not lift injection shanks from the soil until the shut-off valve has been closed and the fumigant has been depressurized (passively drained) or purged (actively forced out via air compressor) from the system.
- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry disconnect couplings (closed transfer system) must be installed on tanks and transfer hoses.
- Sight gauges and pressure gauges must be properly functioning.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor driver during application to prevent backflow of the fumigant into the pressurizing cylinder.
- All rigs must include a flow meter or a flow monitoring device.
- All rigs must have a constant pressure system with orifice plates to ensure the proper amount of fumigant is applied.
- Valves (e.g., backflow, shut-off), vacuum relief valves, and low pressure drains must be in place, operational, and leak free.
- Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels/shanks to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

Spray Blade Applications (includes bed-top blade and soil cap applications)

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions, Injection Depth, and Soil Sealing

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Apply the product mixture on the soil immediately ahead of the bed-shaping equipment or tiller. The soil surface must be compacted immediately after application using one or more of the following methods:

- Compaction with a bed-shaper, roller, press wheel, coil packer, ring packer, or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a ¼-inch of water beginning immediately after application begins and completing the water treatment within four hours, OR
- Covering treated area with a tarp.

Tarps (when tarps are used in Sectagon 42 applications)
- A written tarp plan must be developed and included in the FMP
- Once a tarp is perforated, the application is no longer considered tarped.

Soil Temperature
- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture
- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed available water capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For **coarse** textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Application and Equipment Considerations
- Do not apply or allow fumigant to drain or drip onto the soil surface.
- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry disconnect couplings (closed transfer system) must be installed on all tanks and transfer hoses.
- Sight gauges and pressure gauges must be properly functioning.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor pilot during application to prevent backflow of the fumigant into the pressurizing cylinder.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

Rotary Tiller Applications

Weather Conditions
- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions
- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions, Injection Depth, and Soil Sealing
- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Spray or drip the product mixture on the soil immediately ahead of the bed-shaping equipment or tiller. The soil surface must be compacted immediately after application using one or more of the following methods:
- Compaction with a bed-shaper, roller, press wheel, coil packer, ring packer, or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a ¼-inch of water beginning immediately after application begins and completing the water treatment within four hours, OR
- Covering treated area with a tarp.

Tarps (when tarps are used in Sectagon 42 applications)
- A written tarp plan must be developed and included in the FMP
- Once a tarp is perforated, the application is no longer considered tarped.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed available water capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For **coarse** textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

- Do not apply or allow fumigant to drain or drip onto the soil surface.
- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry disconnect couplings (closed transfer system) must be installed on all tanks and transfer hoses.
- Sight gauges and pressure gauges must be properly functioning.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor driver during application to prevent backflow of the fumigant into the pressurizing cylinder.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels shanks to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

Center Pivot Applications

Wind Speed

- For lateral move or center pivot applications: 1) not using a solid stream type nozzle, OR 2) having a release height or spray height greater than 4 feet, OR 3) having 30 lbs or greater PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.
- For lateral move or center pivot applications using: 1) solid stream, AND 2) having release height and spray height less than 4 feet, AND 3) having 29 lbs. or less PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 25 mph.

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Except when applying over cover crops as set forth in the Product Instructions, crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F, measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed available water capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For **coarse** textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve soil moisture, tillage should be done as close to the time of application as possible.

Flushing Irrigation Lines

- Do not allow fumigant to remain in the irrigation system after the application is complete. After application of the fumigant, flush the injection and irrigation system with untreated water. The flush time must be adequate to purge the fumigant from the injection and irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Any alternatives to the required safety devices in this label must conform to the list of EPA-approved alternative devices.

Solid Set Sprinkler Applications

Wind Speed

- Wind speed at the application site *must* be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Except when applying over cover crops as set forth in the Product Instructions, crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F, measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed available water capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For **coarse** textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve soil moisture, tillage should be done as close to the time of application as possible.

Flushing Irrigation Lines

- Do not allow fumigant to remain in the irrigation system after the application is complete. After application of the fumigant, flush the injection and irrigation system with untreated water. The flush time must be adequate to purge the fumigant from the injection and irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Any alternatives to the required safety devices in this label must conform to the list of EPA-approved alternative devices.

Drench Applications

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F, measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed available water capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For **coarse** textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before the application. To conserve soil moisture, tillage should be done as close to the time of application as possible.
- Applications must be followed immediately with 0.20 to 0.50 inches of water through solid set sprinklers.
- A minimum of two or more water seals must be applied; one water seal on the first evening of the application and the second on the second evening of the day after application.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry disconnect couplings (closed transfer system) must be installed on all tanks and transfer hoses.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- Each nozzle must be equipped with a flow monitor, e.g., mechanical electronic, or Red-ball type monitor.
- To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
- Nozzles and metering devices are of correct size and are sealed and unobstructed.
- The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Any alternatives to the required safety devices in this label must conform to the list of EPA-approved alternative devices.

Drip Applications

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the

fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F, measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed available water capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For **coarse** textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve soil moisture, tillage should be done as close to the time of application as possible.

Tarps (when tarps are used in Sectagon 42 applications)

- A written tarp plan must be developed and included in the FMP
- Application to blocks with previously laid and perforated tarps is allowed, but once a tarp is perforated, the application is no longer considered tarped. Therefore, the application would not be eligible for tarp buffer zone credits.

Flushing Drip Irrigation Lines

- After application of the fumigant, continue to irrigate the area with water to flush the injection and irrigation system with untreated water. Do not allow fumigant to remain in the irrigation system after the application is complete. The total volume of water must be adequate to completely remove the fumigant from the irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal and/or normal irrigation practices.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The drip irrigation system (main lines, headers, drip tape) must be thoroughly checked for leaks before the start of the application. An adequate run-time and pressure are needed to detect leaks. Look for puddling along major pipes (holes on pipes or leaky joints), at the top and ends of rows (leaky connections, open drip tape), in the furrows and on the bed surface (damaged drip tape, malfunctioning emitters).
- To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
- The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Nozzles and metering devices are of correct size and are sealed and unobstructed.
- Any alternatives to the required safety devices in this label must conform to the list of EPA-approved alternative devices.

Flood Basin, Furrow and Border Applications

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service is in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- o Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- o Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Tarps (when tarps are used in Sectagon 42 applications)

- A written tarp plan must be developed and included in the FMP
- Once a tarp is perforated, the application is no longer considered tarped.

Soil Temperature

- o At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F, measured at 3 inches in depth.
- o If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of available water capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed available water capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% available water capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For **coarse** textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of available water capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of available water capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

- o Systems using a gravity flow pesticide dispersing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.
- o Meter at a steady rate into 3 to 18 inches of water per treated acre during irrigation. IMPORTANT: Prior to starting the application, always inspect ditches and border areas to ensure containment of the irrigation waters. Apply only into field head ditch. DO NOT APPLY INTO ANY LATERAL DITCHES.
- o Back-flow prevention devices must be installed and in working order.
- o Tanks must be in good condition to ensure product does not spill or leak.
- o Dry disconnect couplings (closed transfer system) must be installed on all tanks and transfer hoses.
- o Tanks must have sealable covers on access ports.
- o Tanks must have proper pesticide labels affixed to them.
- o All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- o Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- o For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- o To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
- o Flow rates must be calibrated and checked for each application.
- o All previous materials applied with the system must be cleaned thoroughly prior to fumigant application.
- o System must be flushed after application to totally remove all fumigant.

MAXIMUM APPLICATION RATES FOR PRE-PLANT SOIL USES

- Maximum application rate is 320 lbs metam sodium/A and 76 gallons Sectagon-42/A.

CALCULATING THE BROADCAST EQUIVALENT APPLICATION RATE

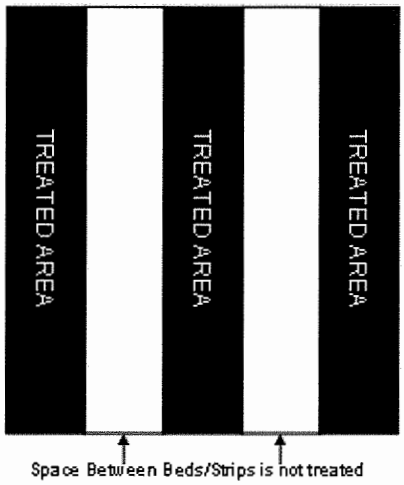
To calculate the broadcast equivalent rate for bedded or strip applications the following information is needed:

- gallons of product per treated acre
- strip or bed bottom width (inches)
- center-to-center row spacing (inches)
- application block size (acres)

Gallons of product **per treated** acre is the ratio of total amount of product applied to the size of the **total area treated** (e.g., the rate of product applied in the bed). For bedded or strip applications, the **total area treated** is the summation of the area (i.e., length x width) of each treated bed bottom or strip that is located within the application block as shown by the black areas in Figure 1 (e.g., black areas are 0.6A or 60% of the area within the application block). The area of the space between the beds/strips is not factored in the total area treated.

The **application block size** is the acreage within the perimeter of the fumigated portion of a field (including furrows, irrigation ditches, roadways). The perimeter of the application block is the border that connects the outermost edges of total area treated with the fumigant product.

Figure 1. Bedded/Strip Application (1 acre application block)

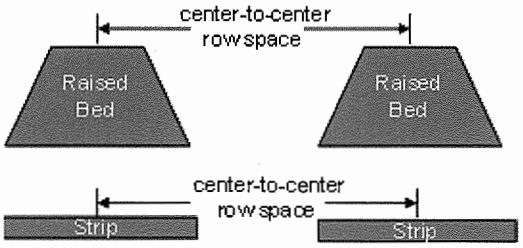


The "broadcast equivalent rate" must be calculated with the following formula:

$$\textbf{broadcast equivalent rate (gallons product/acre)} = \frac{\textbf{strip or bed bottom width (inches)}}{\textbf{center-to-center row spacing (inches)}} \times \textbf{gallons product/ treated acre applied in the strip or bed}$$

- The bed width must be measured from the bottom of bed.
- The center-to-center row spacing must calculate as shown in Figure 2.
- If there are any ditches, waterways, drive rows and other areas that are not fumigated that are in the application block, multiply the above broadcast equivalent equation by **(total area of strips or beds + row spacing)/(application block size).** A sample calculation is provided below.

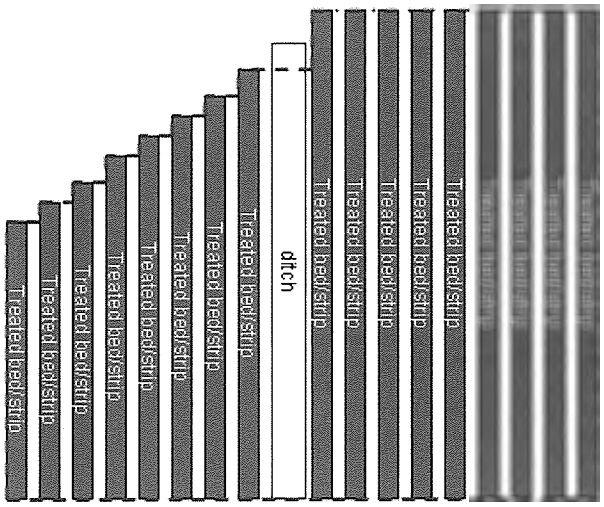
Figure 2. Center Row Spacing



Sample broadcast equivalent rate calculation

Assumptions:

- Application method is shank bedded
- Bed width is 30 inches (measured at the bottom of bed)
- Center-to-center row spacing is 60 inches
- 200 gallons of product per treated acre is applied in the beds
- Total application block size is 10 acres
- Ditch in the middle of application block is 0.25 acres
- Area of beds + row spacing is 9.75 acres



$$\text{broadcast equivalent rate (gallons product/acre)} = \frac{\text{strip or bed bottom width (inches)}}{\text{center-to-center row spacing (inches)}} \times \frac{\text{area of strip or bed + row spacing}}{\text{application block size}} \times \text{gallons product/ treated acre applied in the bed}$$

$$= \frac{\text{30 inch width beds}}{\text{60inch row spacing}} \times \frac{\text{9.75 acres}}{\text{10 acres}} \times \text{200 gallons product/ treated acre}$$

$$= \text{97.5 gallons product/acre}$$

GENERAL BUFFER ZONE REQUIREMENTS

A buffer zone must be established for every fumigant application. The following describes the general buffer zone requirements:

- An area established around the perimeter of each application block. The buffer zone must extend outward from the edge of the application block perimeter equally in all directions.
- All non-handlers, including field workers, residents, pedestrians, and other bystanders, must be excluded from the buffer zone during the buffer zone period except for transit (see *Buffer Zone Exemptions for Transit on Roadways*).
- Local, state, or federal officials performing inspection, sampling, or other similar official duties are not excluded from the application block or the buffer zone by this labeling. The certified applicator supervising the application and the owner of the establishment where the application is taking place are not authorized to, or responsible for, excluding those officials from the application block or the buffer zone.
- The buffer zone period begins at the start of the application and lasts for a minimum of 48-hours after the application is complete.

Buffer Zone Proximity

- Before the start of application, the certified applicator must determine whether their buffer zone will overlap any metam sodium or metam potassium (or other MITC generating pesticides) buffer zone(s).
- To reduce the potential for off-site movement from multiple fumigated fields, buffer zones from multiple metam sodium or metam potassium (or other MITC generating pesticides) application blocks must not overlap UNLESS:
  1. A minimum of 12 hours have elapsed from the time the earlier application(s) is complete until the start of the later application, and
  2. *Fumigant Site Monitoring* or *Response Information for Neighbors* have been implemented if there are any residences or businesses within 300 feet of any of the buffer zones.

In addition, only for Low Release Height-Solid Stream Center Pivot Applications:

- Before the application begins, the certified applicator must determine whether the application block or its resulting buffer will overlap with a buffer that is already in effect.
- To reduce the potential for off-site movement from multiple fumigated fields, buffer zones from multiple metam sodium or metam potassium application blocks may not overlap UNLESS:
  - Both application blocks are treated using low release height-solid stream center pivot systems. The 12 hour waiting period does not apply in this instance.
    NOTE: Under this exception, buffer zones may only overlap with those from application blocks that are not within the same field (i.e., application blocks must be in separate fields that are treated with a different center pivot rig also equipped with low release height etc.). For buffers from application blocks within the same field to overlap, 12 hours must elapse from the completion of the first application until the start of the subsequent application.
  - Emergency preparedness and response measures specified in the label have been implemented if there are any homes, businesses, or property not within the control of the fumigator within 300 feet of each buffer zone.

Structures Under The Control Of The Owner Of The Application Block

- Buffer zones must not include buildings used for storage (e.g., sheds, barns, garages), UNLESS:
  - The storage buildings are not occupied during the buffer zone period, and
  - The storage buildings do not share a common wall with an occupied structure.

Areas Not Under The Control Of The Owner Of The Application Block

- Buffer zones must not include residential areas (e.g., employee housing, private property), buildings (e.g., commercial, industrial), outdoor residential areas (e.g., lawns, gardens, play areas) and other areas that people may occupy, UNLESS:
  1. The occupants provide written agreement, prior to the start of the application, that they will voluntarily vacate the buffer zone during the entire buffer zone period, and
  2. Reentry by occupants and other non-handlers must not occur until,
     - The buffer zone period has ended, and
     - Sensory irritation is not experienced upon re-entry.

- Buffer zones must not include agricultural areas owned and/or operated by persons other than the owner of the application block, UNLESS:
  1. The owner of the application block can ensure that the buffer zone will not overlap with a metam sodium or metam potassium (or other MITC generating pesticides) buffer zone from any other property owners, except as provided in the *Buffer Zone Proximity* section, and
  2. The owner of the other property provides written agreement to the applicator that they, their employees, and other persons will stay out of the buffer zone during the entire buffer zone period.

- Buffer zones must not include roadways and rights of way UNLESS:
  1. The area is not occupied during the buffer zone period, and
  2. Entry by non-handlers is prohibited during the buffer zone period.

     <u>Buffer Zone Exemptions for Transit on Roadways</u>
     Vehicular and bicycle traffic on public and private roadways through the buffer zone is permitted. (NOTE: Buffer zones are not permitted to include bus stops or other locations where persons wait for public transit.)

- For all other publicly owned and/or operated areas such as parks, sidewalks, permanent walking paths, playgrounds, and athletic fields, buffer zones must not include these areas UNLESS:
  1. The area is not occupied during the buffer zone period,
  2. Entry by non-handlers is prohibited during the buffer zone period, and
  3. Written permission to include the public area in the buffer zone is granted by the appropriate state and/or local authorities responsible for management and operation of the area.

Certified applicators must comply with all local laws and regulations.

See the *Posting* section for additional requirements that may apply.

BUFFER ZONE DISTANCES

Buffer zone distances must be calculated using the application rate and the size of the application block.

- Buffer zone distances must be based on look-up tables in this labeling (25 feet is the minimum distance regardless of site-specific application parameters).
- If after applying all applicable buffer zone credits the buffer zone is greater than ½ mile (2,640 ft), then the application is prohibited.
- Tables 1-12 as appropriate for the method of application must be used to determine the minimum buffer distances. Round up to the nearest rate and block size, where applicable. Applications are prohibited for rates or block sizes that exceed what is presented in the buffer zone tables.

Buffer Zone Tables

Table 1. Shank Injection Application - Broadcast Buffer Zone Distances in Feet

Application Block Size (acres)

Gal/A	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	120	140	160
6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
7	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
8	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
9	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
11	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
12	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
13	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
14	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
15	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	31	36
16	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	28	33	38
18	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	36	41
19	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	31	38	43
20	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	27	35	40	46
21	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	27	28	37	43	49
22	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	29	30	39	45	51
23	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	28	30	31	41	47	54
25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	30	32	33	43	50	57
26	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	28	31	33	34	45	52	60
27	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	29	32	35	36	47	55	62
28	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	30	34	36	38	49	57	65
29	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	27	31	35	38	39	51	59	68
31	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	27	28	33	37	39	41	53	62	70
32	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	28	30	34	38	41	42	55	64	73
33	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	29	31	35	39	42	44	57	66	76
34	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	27	30	32	36	41	44	45	59	69	79
35	25	25	25	25	25	25	25	25	25	25	25	25	25	26	27	28	31	33	38	42	45	47	61	71	81
36	25	25	25	25	25	25	25	25	25	25	25	25	26	27	28	29	32	34	39	44	47	48	63	73	84
38	25	25	25	25	25	25	25	25	25	25	25	25	27	28	29	30	33	35	40	45	48	50	65	76	87
39	25	25	25	25	25	25	25	25	25	25	25	26	28	29	30	31	34	37	42	47	51	53	69	81	92
40	25	25	25	25	25	25	25	25	25	25	25	27	29	30	31	32	35	40	45	50	53	56	73	85	97
41	25	25	25	25	25	25	25	25	25	25	25	27	30	31	32	33	36	42	47	52	56	59	77	90	103
42	25	25	25	25	25	25	25	25	25	25	25	28	30	32	33	34	37	44	49	54	58	62	81	95	108
43	25	25	25	25	25	25	25	25	25	25	25	29	31	32	34	35	38	47	52	57	61	65	85	99	113
45	25	25	25	25	25	25	25	25	25	25	25	30	32	33	34	36	39	49	54	59	63	66	89	104	119
46	25	25	25	25	25	25	25	25	25	25	25	30	33	34	35	37	40	51	56	61	66	71	93	109	124
47	25	25	25	25	25	25	25	25	25	25	25	31	34	35	36	38	41	53	58	63	68	74	97	113	129
48	25	25	25	25	25	25	25	25	25	25	26	32	35	36	37	38	42	56	61	66	71	77	101	118	135
49	25	25	25	25	25	25	25	25	25	25	26	33	36	37	38	39	43	58	63	68	73	80	105	123	140
50	25	25	25	25	25	25	25	25	25	25	27	34	36	38	39	40	44	60	65	70	76	83	109	127	145
52	25	25	25	25	25	25	25	25	25	25	28	34	37	39	40	41	45	63	68	73	78	86	113	132	151
53	25	25	25	25	25	25	25	25	25	25	28	35	38	39	41	42	46	65	70	75	81	89	117	137	156
54	25	25	25	25	25	25	25	25	25	25	29	36	39	40	42	43	47	67	72	77	83	92	121	141	161
55	25	25	25	25	25	25	25	25	25	25	29	37	40	41	43	44	48	70	75	80	86	95	125	146	167
56	25	25	25	25	25	25	25	25	25	25	30	38	41	42	44	45	50	72	77	83	88	98	129	151	177
58	25	25	25	25	25	25	25	25	25	26	31	38	41	43	44	46	51	74	79	84	91	101	133	155	177
59	25	25	25	25	25	25	25	25	25	26	31	39	42	44	45	47	52	76	81	86	94	104	137	160	184
60	25	25	25	25	25	25	25	25	25	27	32	40	43	45	46	48	53	79	84	89	96	107	141	165	188
61	25	25	25	25	25	25	25	25	25	27	33	41	44	46	47	49	54	81	86	91	98	110	145	169	194
62	25	25	25	25	25	25	25	25	25	28	33	41	45	46	48	50	55	83	88	94	101	113	149	174	199
63	25	25	25	25	25	25	25	25	26	28	34	42	46	47	49	51	56	86	91	96	103	116	153	179	204
65	25	25	25	25	25	25	25	25	26	29	34	43	46	48	50	52	57	88	93	98	105	119	157	183	209
66	25	25	25	25	25	25	25	25	27	29	35	44	47	49	51	53	58	90	95	100	115	130	164	191	219
67	25	25	25	25	25	25	25	25	27	30	36	45	48	50	52	53	59	92	97	102	117	132	167	195	223
68	25	25	25	25	25	25	25	25	26	30	36	45	49	51	53	54	60	93	98	104	119	135	170	198	226
69	25	25	25	25	25	25	25	25	26	28	31	37	46	50	52	53	55	61	95	100	105	121	137	173	202	230
70	25	25	25	25	25	25	25	25	27	29	31	38	47	51	53	54	56	62	96	102	107	123	139	176	205	234
72	25	25	25	25	25	25	25	25	27	29	32	38	48	51	53	55	57	63	98	103	108	125	142	179	208	238
73	25	25	25	25	25	25	26	28	30	32	33	48	52	54	56	58	64	100	105	111	127	144	182	212	242
74	25	25	25	25	25	25	26	28	30	33	39	49	53	55	57	59	65	101	107	113	129	146	185	215	246
75	25	25	25	25	25	25	27	29	31	33	40	50	54	56	58	60	66	103	109	114	131	149	187	219	250

Broadcast Equivalent Application Rate (Gallons product/A)

Table 2. Shank Injection Application - Broadcast with Water Seal Buffer Zone Distances in Feet

Broadcast Equivalent Application Rate (Gallons product/A)

	Application Block Size (acres)																								
Gal/A	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	120	140	160
6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
7	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
8	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
9	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
11	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
12	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
13	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
14	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
15	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
16	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
18	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
19	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
20	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
21	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
22	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
23	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
26	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
27	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
28	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
29	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
31	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
32	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
33	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
34	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
35	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
36	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
38	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
39	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
40	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
41	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
42	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
43	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
45	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
46	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
47	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
48	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
49	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
52	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
53	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
54	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
55	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
56	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
58	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
59	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
60	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
61	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
62	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
63	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
65	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
66	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
67	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
68	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
69	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
70	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
72	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
73	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
74	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
75	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

Apply at least 0.25 inches of water immediately after application.

Table 3. Shank Injection Application - Bedded Buffer Zone Distances in Feet

Application Block Size (acres)

Broadcast Equivalent Application Rate (Gallons product/A) Gal/A	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	110	120	140	160
18	25	25	25	25	25	25	25	25	25	25	25	25	50	75	100	125	150	175	213	250	288	325	350	375	438	500
19	25	25	25	25	25	25	25	25	25	25	25	50	75	100	125	150	175	200	238	275	313	350	375	400	467	533
20	25	25	25	25	25	26	28	29	30	31	44	75	100	125	150	175	206	238	274	311	352	393	421	450	525	600
21	25	25	25	25	25	27	30	32	35	38	63	100	125	150	175	200	238	275	311	348	391	435	468	500	583	667
22	25	25	25	25	25	29	32	36	40	44	81	125	150	175	200	225	269	313	348	384	431	478	514	550	642	733
23	25	25	25	25	25	30	35	40	45	50	100	150	175	200	225	250	300	350	385	420	470	520	560	600	700	800
25	25	25	25	31	38	45	53	60	68	75	125	175	206	238	263	288	338	388	426	465	515	565	608	650	758	867
26	25	25	30	40	50	60	70	80	90	100	150	200	238	275	300	325	375	425	468	510	560	610	655	700	817	933
27	25	25	38	50	63	75	88	100	113	125	175	225	269	313	338	363	413	463	509	555	605	655	703	750	875	1000
28	25	30	45	60	75	90	105	120	135	150	200	250	300	350	375	400	450	500	550	600	650	700	750	800	933	1067
29	28	43	58	73	88	103	118	133	148	163	213	263	313	363	388	413	475	538	594	650	700	750	800	850	992	1133
31	40	55	70	85	100	115	130	145	160	175	225	275	325	375	400	425	500	575	638	700	750	800	850	900	1050	1200
32	53	68	83	98	113	128	143	158	173	188	238	288	338	388	413	438	525	613	681	750	800	850	900	950	1108	1267
33	65	80	95	110	125	140	155	170	185	200	250	300	350	400	425	450	550	650	725	800	850	900	950	1000	1167	1333
34	71	86	101	116	131	146	161	176	191	206	263	313	425	413	450	488	581	675	753	831	884	938	1000	1063	1240	1417
35	78	93	108	123	138	153	168	183	198	213	275	325	450	425	475	525	613	700	781	863	919	975	1050	1125	1313	1500
36	84	99	114	129	144	159	174	189	204	219	288	338	475	438	500	563	644	725	809	894	953	1013	1100	1188	1385	1583
38	90	105	120	135	150	165	180	195	210	225	300	350	400	450	525	600	675	750	838	925	988	1050	1150	1250	1458	1667
39	93	108	124	139	155	170	186	201	217	232	309	361	413	464	541	619	696	773	864	954	1018	1083	1186	1289	1504	1719
40	96	112	128	143	159	175	191	207	223	239	319	372	425	478	558	638	717	797	890	983	1049	1116	1222	1328	1549	1771
41	98	115	131	148	164	180	197	213	230	246	328	383	438	492	574	656	738	820	916	1012	1080	1148	1258	1367	1595	1823
42	101	118	135	152	169	186	203	219	236	253	338	394	450	506	591	675	759	844	942	1041	1111	1181	1294	1406	1641	1875
43	104	121	139	156	173	191	208	225	243	260	347	405	463	520	607	694	780	867	968	1070	1142	1214	1330	1445	1686	1927
45	107	125	143	160	178	196	214	232	249	267	356	416	475	534	623	713	802	891	995	1098	1173	1247	1366	1484	1732	1979
46	110	128	146	165	183	201	219	238	256	274	366	427	488	548	640	731	823	914	1021	1127	1204	1280	1402	1523	1777	2031
47	113	131	150	169	188	206	225	244	263	281	375	438	500	563	656	750	844	938	1047	1156	1234	1313	1438	1563	1823	2083
48	115	135	154	173	192	211	231	250	269	288	384	448	513	577	673	769	865	961	1073	1185	1265	1345	1473	1602	1868	2135
49	118	138	158	177	197	217	236	256	276	295	394	459	525	591	689	788	886	984	1099	1214	1296	1378	1509	1641	1914	2188
50	121	141	161	181	202	222	242	262	282	302	403	470	538	605	705	806	907	1008	1125	1243	1327	1411	1545	1680	1960	2240
52	124	144	165	186	206	227	248	268	289	309	413	481	550	619	722	825	928	1031	1152	1272	1358	1444	1581	1719	2005	2292
53	127	148	169	190	211	232	253	274	295	316	422	492	563	633	738	844	949	1055	1178	1301	1389	1477	1617	1758	2051	2344
54	129	151	173	194	216	237	259	280	302	323	431	503	575	647	755	863	970	1078	1204	1330	1420	1509	1653	1797	2096	2396
55	132	154	176	198	220	242	264	286	308	330	441	514	588	661	771	881	991	1102	1230	1359	1450	1542	1689	1836	2142	2448
56	135	158	180	203	225	248	270	293	315	338	450	525	600	675	788	900	1013	1125	1256	1388	1481	1575	1725	1875	2188	2500

Table 4. Spray Blade and Rotary Tiller Applications Buffer Zone Distance in Feet

Broadcast Equivalent Application Rate (Gallons product/A)	Application Block Size (acres)													
Gal/A	1	5	6	7	8	9	10	20	30	40	50	60	70	80
8	25	25	25	25	25	25	25	25	25	25	25	25	25	25
13	25	25	25	25	25	25	25	25	25	25	25	25	25	25
19	25	25	25	25	25	25	25	25	25	25	25	25	25	25
23	25	25	25	25	25	25	25	25	25	25	25	25	25	25
28	25	25	25	25	25	25	25	25	25	25	25	25	25	25
33	25	25	25	25	25	25	25	25	25	25	25	25	25	25
38	25	25	25	25	25	25	25	25	25	25	25	25	25	25
42	25	25	25	25	25	25	25	25	25	25	42	57	64	72
47	25	25	25	25	25	25	25	25	25	25	58	88	103	118
52	25	25	25	25	25	25	25	25	25	25	74	119	142	164
56	25	25	25	25	25	25	25	25	25	25	90	150	180	210
61	25	25	27	29	30	32	34	49	64	75	135	188	218	248
66	25	25	29	32	36	39	43	73	103	125	180	225	255	285
70	25	25	30	36	41	47	52	97	142	275	225	263	293	323
75	25	25	32	39	46	53	60	120	180	225	270	300	330	360

Table 5. Center Pivot and Lateral Move Application (High Release Height*) Buffer Zone Distance in Feet

Broadcast Equivalent Application Rate (Gallons product/A)	Application Block Size (acres)															
Gal/A	1	5	10	20	30	40	50	60	70	80	90	100	110	120	140	160
8	50	50	50	75	75	100	100	200	200	200	250	300	350	400	600	800
13	80	100	100	138	138	200	200	300	300	300	350	400	450	500	700	900
19	125	150	150	200	200	300	300	400	400	400	450	500	550	600	800	1000
23	160	188	200	250	269	363	382	475	488	500	550	600	650	700	900	1100
28	185	225	250	300	338	425	463	550	575	600	650	700	750	800	1000	1200
33	205	263	300	350	407	488	544	625	663	700	750	800	850	900	1100	1300
38	220	300	350	400	475	550	625	700	750	800	850	900	950	1000	1200	1400
42	235	313	375	450	557	638	719	825	888	950	1000	1050	1100	1150	1350	1550
47	250	325	400	500	638	725	813	950	1025	1100	1150	1200	1250	1300	1500	1700
52	262	338	425	550	719	813	907	1075	1163	1250	1300	1350	1400	1450	1650	1850
56	275	350	450	600	800	900	1000	1200	1300	1400	1450	1500	1550	1600	1800	2000
61	288	363	488	650	850	975	1100	1300	1400	1500	1563	1625	1688	1750	1950	2150
66	300	375	525	700	900	1050	1200	1400	1500	1600	1675	1750	1825	1900	2100	2300
70	312	389	563	750	950	1125	1300	1500	1600	1700	1788	1875	1963	2050	2250	2450
75	325	400	600	800	1000	1200	1400	1600	1700	1800	1900	2000	2100	2200	2400	2600

* This buffer zone distance table is for center pivot and lateral move irrigation equipment in which the: 1) release height OR spray height greater than 8 feet, and 2) there is > 30 lbs psi at the sprinkler head.

Table 6. Center Pivot and Lateral Move Application (Medium Release Height**) Buffer Zone Distance in Feet

Broadcast Equivalent Application Rate (Gallons product/A)	Application Block Size (acres)															
Gal/A	1	5	10	20	30	40	50	60	70	80	90	100	110	120	140	160
8	25	25	25	25	25	50	50	75	75	75	88	100	150	200	400	600
13	25	38	50	50	50	75	75	138	138	138	169	200	250	300	500	700
19	25	50	75	75	75	100	100	200	200	200	250	300	350	400	600	800
23	37	63	94	107	125	163	182	275	288	300	350	400	450	500	700	900
28	50	75	113	138	175	225	263	350	375	400	450	500	550	600	800	1000
33	62	88	132	169	225	288	344	425	463	500	550	600	650	700	900	1100
38	75	100	150	200	275	350	425	500	550	600	650	700	750	800	1000	1200
42	87	113	175	250	357	438	519	625	688	750	800	850	900	950	1150	1350
47	100	125	200	300	438	525	613	750	825	900	950	1000	1050	1100	1300	1500
52	112	138	225	350	519	613	707	875	963	1050	1100	1150	1200	1250	1450	1650
56	125	150	250	400	600	700	800	1000	1100	1200	1250	1300	1350	1400	1600	1800
61	138	263	288	450	650	775	900	1100	1200	1300	1363	1425	1488	1550	1750	1950
66	150	175	325	500	700	850	1000	1200	1300	1400	1475	1550	1625	1700	1900	2100
70	162	188	363	550	750	925	1100	1300	1400	1500	1588	1675	1763	1850	2050	2250
75	175	200	400	600	800	1000	1200	1400	1500	1600	1700	1800	1900	2000	2200	2400

** This buffer zone distance table is for center pivot and lateral move irrigation equipment in which the: 1) release height AND spray height is less than 8 feet, AND 2) 29lbs. or less PSI at the sprinkler head, AND 3) there are no end guns.

Table 7. Center Pivot and Lateral Move Application (Low Release Height-Solid Stream***) Buffer Zone Distance in Feet

Broadcast Equivalent Application Rate (Gallons product/A)	Application Block Size (acres)															
Gal/A	1	5	10	20	30	40	50	60	70	80	90	100	110	120	140	160
8	25	25	25	25	25	25	25	50	63	75	88	100	125	150	350	550
13	25	25	38	38	38	50	50	75	100	125	138	150	188	225	425	625
19	25	25	50	50	50	75	75	100	138	175	188	200	250	300	500	700
23	30	35	63	70	75	107	119	150	192	232	254	275	325	375	575	775
28	35	50	75	89	100	138	163	200	244	288	319	350	400	450	650	850
33	40	63	88	107	125	169	207	250	297	344	385	425	475	525	725	925
38	50	75	100	125	150	200	250	300	350	400	450	500	550	600	800	1000
42	60	94	125	157	188	238	294	363	419	475	532	588	644	700	900	1100
47	70	113	150	188	225	275	338	425	488	550	613	675	738	800	1000	1200
52	85	132	175	219	263	313	382	488	557	625	694	763	832	900	1100	1300
56	105	150	200	250	300	350	425	550	625	700	775	850	925	1000	1200	1400
61	125	163	225	288	350	413	494	613	694	775	857	938	1019	1100	1300	1500
66	145	175	250	325	400	475	563	675	763	850	938	1025	1113	1200	1400	1600
70	165	188	275	363	450	538	632	738	832	925	1019	1113	1207	1300	1500	1700
75	185	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1600	1800

*** This buffer zone distance table is for center pivot and lateral move irrigation equipment in which the: 1) release height AND spray height is less than 4 feet, AND 2) 29lbs. or less PSI at the sprinkler head, AND 3) application system produces a solid stream (e.g. drizzle boom, Smart Drop®), AND 4) there are no end guns.

Table 8. Solid Set Sprinkler Application Buffer Zone Distance in Feet

Application Block Size (acres)

Broadcast Equivalent Application Rate (Gallons product/A) Gal/A	1	2	3	4	5	6	7	8	9	10	20	30	40	50	60	70	80	90	100	110	120
8	25	25	25	25	25	25	25	25	25	25	25	25	50	50	75	75	75	88	100	150	200
13	38	38	38	38	38	40	43	45	48	50	50	50	75	75	138	138	138	169	200	250	300
19	50	50	50	50	50	55	60	65	70	75	75	75	100	100	200	200	200	250	300	350	400
23	55	57	58	60	63	69	75	81	87	94	107	125	163	182	275	288	300	350	400	450	500
28	62	65	67	70	75	83	90	98	105	113	138	175	225	263	350	375	400	450	500	550	600
33	68	73	78	83	88	97	106	114	123	132	169	225	288	344	425	463	500	550	600	650	700
38	75	81	88	94	100	110	120	130	140	150	200	275	350	425	500	550	600	650	700	750	800
42	80	88	97	105	113	125	138	150	163	175	250	357	438	519	625	688	750	800	850	900	950
47	87	97	106	116	125	131	140	146	155	200	300	438	525	613	750	825	900	950	1000	1050	1100
52	93	104	116	127	138	155	173	190	208	225	350	519	613	707	875	963	1050	1100	1150	1200	1250
56	100	113	125	138	150	170	190	210	230	250	400	600	700	800	1000	1100	1200	1100	1300	1350	1400
61	115	152	189	226	263	268	273	278	283	288	450	650	775	900	1100	1200	1300	1363	1425	1488	1550
66	125	138	150	163	175	205	235	265	295	325	500	700	850	1000	1200	1300	1400	1475	1550	1625	1700
70	137	150	163	175	188	223	258	293	328	363	550	750	925	1100	1300	1400	1500	1588	1675	1763	1850
75	150	163	175	188	200	240	280	320	360	400	600	800	1000	1200	1400	1500	1600	1700	1800	1900	2000

Table 9. Drench Application Buffer Zone Distances in Feet

Broadcast Equivalent Application Rate (Gallons product/A)

Gal/A	Application Block Size (acres) 1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	120
6	28	31	34	36	39	42	44	47	51	55	70	86	94	102	109	125	141	156	164	180	195	211	234
7	34	37	41	44	47	50	53	56	61	66	84	103	113	122	131	150	169	188	197	216	234	253	281
8	40	44	47	51	55	58	62	66	71	77	98	120	131	142	153	175	197	219	230	252	273	295	328
9	46	50	54	58	63	67	71	75	81	88	113	138	150	163	175	200	225	250	263	288	313	338	375
11	51	56	61	66	70	75	80	84	91	98	127	155	169	183	197	225	253	281	295	323	352	380	422
12	57	62	68	73	78	83	88	94	102	109	141	172	188	203	219	250	281	313	328	359	391	422	469
13	63	68	74	80	86	92	97	103	112	120	155	189	206	223	241	275	309	344	361	395	430	464	516
14	68	75	81	87	94	100	106	113	122	131	169	206	225	244	263	300	338	375	394	431	469	506	563
15	74	81	88	95	102	108	115	122	132	142	183	223	244	264	284	325	366	406	427	467	508	548	609
16	80	87	95	102	109	117	124	131	142	153	197	241	263	284	306	350	394	438	459	503	547	591	656
18	85	93	101	109	117	125	133	141	152	164	211	258	281	305	328	375	422	469	492	539	586	633	703
19	91	100	108	117	125	134	142	150	163	175	225	275	300	325	350	400	450	500	525	575	625	675	750
20	97	106	115	124	133	142	150	159	173	186	239	292	319	345	372	425	478	531	558	611	664	717	797
21	102	112	122	131	141	150	159	169	183	197	253	309	338	366	394	450	506	563	591	647	703	759	844
22	108	118	128	138	148	159	168	178	193	208	267	327	356	386	416	475	534	594	623	683	742	802	891
23	114	124	135	146	156	167	177	188	203	219	281	344	375	406	438	500	563	625	656	719	781	844	938
25	119	131	142	153	164	175	186	197	213	230	295	361	394	427	459	525	591	656	689	755	820	886	984
26	125	137	149	160	172	184	195	206	223	241	309	378	413	447	481	550	619	688	722	791	859	928	1031
27	131	143	155	167	180	192	203	216	234	252	323	395	431	467	503	575	647	719	755	827	898	970	1078
28	137	149	162	175	188	200	212	225	244	263	338	413	450	488	525	600	675	750	788	863	938	1013	1125
29	142	155	169	182	195	209	221	234	254	273	352	430	469	508	547	625	703	781	820	898	977	1055	1172
31	148	162	176	189	203	217	230	244	264	284	366	447	488	528	569	650	731	813	853	934	1016	1097	1219
32	154	168	182	197	211	225	239	253	274	295	380	464	506	548	591	675	759	844	886	970	1055	1139	1266
33	159	174	189	204	219	234	248	263	284	306	394	481	525	569	613	700	788	875	919	1006	1094	1181	1313
34	165	180	196	211	227	242	256	272	295	317	408	498	544	589	634	725	816	906	952	1042	1133	1223	1359
35	171	187	203	218	234	250	265	281	305	328	422	516	563	609	656	750	844	938	984	1078	1172	1266	1406
36	176	193	209	226	242	259	274	291	315	339	436	533	581	630	678	775	872	969	1017	1114	1211	1308	1453
38	182	199	216	233	250	267	283	300	325	350	450	550	600	650	700	800	900	1000	1050	1150	1250	1350	1500
39	188	205	223	240	258	275	292	309	335	361	464	567	619	670	722	825	928	1031	1083	1186	1289	1392	1547
40	193	211	230	248	266	284	301	319	345	372	478	584	638	691	744	850	956	1063	1116	1222	1328	1434	1594
41	199	218	236	255	273	292	310	328	355	383	492	602	656	711	766	875	984	1094	1148	1258	1367	1477	1641
42	205	224	243	262	281	300	318	338	366	394	506	619	675	731	788	900	1013	1125	1181	1294	1406	1519	1688
43	210	230	250	269	289	309	327	347	376	405	520	636	694	752	809	925	1041	1156	1214	1330	1445	1561	1734
45	216	236	257	277	297	317	336	356	386	416	534	653	713	772	831	950	1069	1188	1247	1366	1484	1603	1781
46	222	243	263	284	305	325	345	366	396	427	548	670	731	792	853	975	1097	1219	1280	1402	1523	1645	1828
47	228	249	270	291	313	334	354	375	406	438	563	688	750	813	875	1000	1125	1250	1313	1438	1563	1688	1875
48	233	255	277	299	320	342	363	384	416	448	577	705	769	833	897	1025	1153	1281	1345	1473	1602	1730	1922
49	239	261	284	306	328	350	371	394	427	459	591	722	788	853	919	1050	1181	1313	1378	1509	1641	1772	1969
50	245	267	290	313	336	359	380	403	437	470	605	739	806	873	941	1075	1209	1344	1411	1545	1680	1814	2016
52	250	274	297	320	344	367	389	413	447	481	619	756	825	894	963	1100	1238	1375	1444	1581	1719	1856	2063
53	256	280	304	328	352	375	398	422	457	492	633	773	844	914	984	1125	1266	1406	1477	1617	1758	1898	2109
54	262	286	311	335	359	384	407	431	467	503	647	791	863	934	1006	1150	1294	1438	1509	1653	1797	1941	2156
55	267	292	317	342	367	392	416	441	477	514	661	808	881	955	1028	1175	1322	1469	1542	1689	1836	1983	2203
56	273	299	324	350	375	401	425	450	488	525	675	825	900	975	1050	1200	1350	1500	1575	1725	1875	2025	2250
58	279	305	331	357	383	409	433	459	498	536	689	842	919	995	1072	1225	1378	1531	1608	1761	1914	2067	2297
59	284	311	338	364	391	417	442	469	508	547	703	859	938	1016	1094	1250	1406	1563	1641	1797	1953	2109	2344
60	290	317	344	371	398	426	451	478	518	558	717	877	956	1036	1116	1275	1434	1594	1673	1833	1992	2152	2391
61	296	323	351	379	406	434	460	488	528	569	731	894	975	1056	1138	1300	1463	1625	1706	1869	2031	2194	2438
62	301	330	358	386	414	442	469	497	538	580	745	911	994	1077	1159	1325	1491	1656	1739	1905	2070	2236	2484
63	307	336	365	393	422	451	478	506	548	591	759	928	1013	1097	1181	1350	1519	1688	1772	1941	2109	2278	2531
65	313	342	371	400	430	459	486	516	559	602	773	945	1031	1117	1203	1375	1547	1719	1805	1977	2148	2320	2578
66	319	348	378	408	438	467	495	525	569	613	788	963	1050	1138	1225	1400	1575	1750	1838	2013	2188	2363	2625
67	324	354	385	415	445	476	504	534	579	623	802	980	1069	1158	1247	1425	1603	1781	1870	2048	2227	2405	2640
68	330	361	392	422	453	484	513	544	589	634	816	997	1088	1178	1269	1450	1631	1813	1903	2084	2266	2447	2686
69	336	367	398	430	461	492	522	553	599	645	830	1014	1106	1198	1291	1475	1659	1844	1936	2120	2305	2489	2733
70	341	373	405	437	469	501	531	563	609	656	844	1031	1125	1219	1313	1500	1688	1875	1969	2156	2344	2531	2779
72	347	379	412	444	477	509	539	572	620	667	858	1048	1144	1239	1334	1525	1716	1906	2002	2192	2383	2573	2825
73	353	386	419	451	484	517	548	581	630	678	872	1066	1163	1259	1356	1550	1744	1938	2034	2228	2422	2616	2872
74	358	392	425	459	492	526	557	591	640	689	886	1083	1181	1280	1378	1575	1772	1969	2067	2264	2461	2640	2918
75	364	398	432	466	500	534	566	600	650	700	900	1100	1200	1300	1400	1600	1800	2000	2100	2300	2500	2686	2964

Buffer zone distances cannot be greater than ½ mile (2,640 feet). If after applying applicable credits the buffer zone distances are still greater than ½ mile (2,640 feet) then the application is prohibited.

Table 10. Drip Application Buffer Zone Distances in Feet

Broadcast Equivalent Application Rate (Gallons product/A)	Application Block Size (acres)															
Gal/A	1	2	3	4	5	6	7	8	9	10	20	30	40	50	60	70	80
4	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
7	25	25	25	25	25	25	25	25	25	25	38	38	50	50	63	76	88
9	25	25	25	25	25	25	25	25	25	25	50	50	75	75	100	125	150
12	25	25	25	25	25	26	28	29	31	32	57	57	82	82	113	140	163
14	25	25	25	25	25	28	30	33	35	38	63	63	88	88	125	150	175
16	25	25	25	25	25	29	33	36	40	44	69	69	94	94	138	163	188
19	25	25	25	25	25	30	35	40	45	50	75	75	100	100	150	175	200
21	25	27	29	30	32	37	42	47	52	57	82	94	113	125	175	207	238
23	25	28	32	35	38	43	48	53	58	63	88	113	125	150	200	250	275
26	25	30	35	39	44	49	54	59	64	69	94	132	138	175	225	269	313
28	25	31	38	44	50	55	60	65	70	75	100	150	150	200	250	300	350
31	32	37	41	46	50	56	63	69	76	82	125	188	200	250	300	350	400
33	38	41	44	47	50	58	65	73	80	88	150	225	250	300	350	400	450
35	44	46	47	49	50	59	68	76	85	94	175	263	300	350	400	450	500
38	50	50	50	50	50	60	70	80	90	100	200	300	350	400	450	500	550
40	51	52	53	54	55	64	74	85	96	106	213	319	372	425	478	531	584
42	52	54	56	58	60	68	79	90	101	113	225	338	394	450	506	563	634
45	53	56	59	62	65	71	83	95	107	119	238	356	416	475	534	594	684
47	54	58	62	66	70	75	88	100	113	125	250	375	438	500	563	625	734
49	55	60	65	70	75	79	92	105	118	131	263	394	459	525	591	656	784
52	56	62	68	74	80	83	96	110	124	138	275	413	481	550	619	688	834
54	57	64	71	78	85	86	101	115	129	144	288	431	503	575	647	719	884
56	58	66	75	82	90	90	105	120	135	150	300	450	525	600	675	750	934

Table 11. Flood Basin, Furrow, and Border Application Buffer Zone Distances in Feet

Broadcast Equivalent Application Rate (Gallons product/A)

	Application Block Size (acres)																						
Gal/A	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	120
6	25	25	25	25	25	34	36	38	41	43	55	63	70	78	90	102	113	125	137	148	160	172	195
7	25	25	25	35	38	40	43	46	49	52	66	75	84	94	108	122	136	150	164	178	192	206	234
8	25	34	37	40	44	47	50	54	57	60	77	88	98	109	126	142	159	175	191	208	224	241	273
9	35	39	43	46	50	54	58	61	65	69	88	100	113	125	144	163	181	200	219	238	256	275	313
11	39	44	48	52	56	60	65	69	73	77	98	113	127	141	162	183	204	225	246	267	288	309	352
12	44	48	53	58	63	67	72	77	81	86	109	125	141	156	180	203	227	250	273	297	320	344	391
13	48	53	58	64	69	74	79	84	89	95	120	138	155	172	198	223	249	275	301	327	352	378	430
14	53	58	64	69	75	81	86	92	98	103	131	150	169	188	216	244	272	300	328	356	384	413	469
15	57	63	69	75	81	87	93	100	106	112	142	163	183	203	234	264	295	325	355	386	416	447	508
16	61	68	74	81	88	94	101	107	114	120	153	175	197	219	252	284	317	350	383	416	448	481	547
18	66	73	80	87	94	101	108	115	122	129	164	188	211	234	270	305	340	375	410	445	480	516	586
19	70	78	85	93	100	108	115	123	130	138	175	200	225	250	288	325	363	400	438	475	513	550	625
20	74	82	90	98	106	114	122	130	138	146	186	213	239	266	305	345	385	425	465	505	545	584	664
21	79	87	96	104	113	121	129	138	146	155	197	225	253	281	323	366	408	450	492	534	577	619	703
22	83	92	101	110	119	128	137	145	154	163	208	238	267	297	341	386	430	475	520	564	609	653	742
23	88	97	106	116	125	134	144	153	163	172	219	250	281	313	359	406	453	500	547	594	641	688	781
25	92	102	112	121	131	141	151	161	171	180	230	263	295	328	377	427	476	525	574	623	673	722	820
26	96	107	117	127	138	148	158	168	179	189	241	275	309	344	395	447	498	550	602	653	705	756	859
27	101	111	122	133	144	155	165	176	187	198	252	288	323	359	413	467	521	575	629	683	737	791	898
28	105	116	128	139	150	161	173	184	195	206	263	300	338	375	431	488	544	600	656	713	769	825	938
29	109	121	133	145	156	168	180	191	203	215	273	313	352	391	449	508	566	625	684	742	801	859	977
31	114	126	138	150	163	175	187	199	211	223	284	325	366	406	467	528	589	650	711	772	833	894	1016
32	118	131	143	156	169	181	194	207	219	232	295	338	380	422	485	548	612	675	738	802	865	928	1055
33	123	136	149	162	175	188	201	214	228	241	306	350	394	438	503	569	634	700	766	831	897	963	1094
34	127	140	154	168	181	195	208	222	236	249	317	363	408	453	521	589	657	725	793	861	929	997	1133
35	131	145	159	173	188	202	216	230	244	258	328	375	422	469	539	609	680	750	820	891	961	1031	1172
36	136	150	165	179	194	208	223	237	252	266	339	388	436	484	557	630	702	775	848	920	993	1066	1211
38	140	155	170	185	200	215	230	245	260	275	350	400	450	500	575	650	725	800	875	950	1025	1100	1250
39	144	160	175	191	206	222	237	253	268	284	361	413	464	516	593	670	748	825	902	980	1057	1134	1289
40	149	165	181	197	213	228	244	260	276	292	372	425	478	531	611	691	770	850	930	1009	1089	1169	1328
41	153	170	186	202	219	235	252	268	284	301	383	438	492	547	629	711	793	875	957	1039	1121	1203	1367
42	158	174	191	208	225	242	259	276	293	309	394	450	506	563	647	731	816	900	984	1069	1153	1238	1406
43	162	179	197	214	231	249	266	283	301	318	405	463	520	578	665	752	838	925	1012	1098	1185	1272	1445
45	166	184	202	220	238	255	273	291	309	327	416	475	534	594	683	772	861	950	1039	1128	1217	1306	1484
46	171	189	207	225	244	262	280	299	317	335	427	488	548	609	701	792	884	975	1066	1158	1249	1341	1523
47	175	194	213	231	250	269	288	306	325	344	438	500	563	625	719	813	906	1000	1094	1188	1281	1375	1563
48	179	199	218	237	256	275	295	314	333	352	448	513	577	641	737	833	929	1025	1121	1217	1313	1409	1602
49	184	203	223	243	263	282	302	322	341	361	459	525	591	656	755	853	952	1050	1148	1247	1345	1444	1641
50	188	208	228	249	269	289	309	329	349	370	470	538	605	672	773	873	974	1075	1176	1277	1377	1478	1680
52	193	213	234	254	275	296	316	337	358	378	481	550	619	688	791	894	997	1100	1203	1306	1409	1513	1719
53	197	218	239	260	281	302	323	345	366	387	492	563	633	703	809	914	1020	1125	1230	1336	1441	1547	1758
54	201	223	244	266	288	309	331	352	374	395	503	575	647	719	827	934	1042	1150	1258	1366	1473	1581	1797
55	206	228	250	272	294	316	338	360	382	404	514	588	661	734	845	955	1065	1175	1285	1395	1505	1616	1836
56	210	233	255	278	300	323	345	368	390	413	525	600	675	750	863	975	1088	1200	1313	1425	1538	1650	1875
58	214	237	260	283	306	329	352	375	398	421	536	613	689	766	880	995	1110	1225	1340	1455	1570	1684	1914
59	219	242	266	289	313	336	359	383	406	430	547	625	703	781	898	1016	1133	1250	1367	1484	1602	1719	1953
60	223	247	271	295	319	343	367	390	414	438	558	638	717	797	916	1036	1155	1275	1395	1514	1634	1753	1992
61	228	252	276	301	325	349	374	398	423	447	569	650	731	813	934	1056	1178	1300	1422	1544	1666	1788	2031
62	232	257	282	306	331	356	381	406	431	455	580	663	745	828	952	1077	1201	1325	1449	1573	1698	1822	2070
63	236	262	287	312	338	363	388	413	439	464	591	675	759	844	970	1097	1223	1350	1477	1603	1730	1856	2109
65	241	266	292	318	344	370	395	421	447	473	602	688	773	859	988	1117	1246	1375	1504	1633	1762	1891	2148
66	245	271	298	324	350	376	403	429	455	481	613	700	788	875	1006	1138	1269	1400	1531	1663	1794	1925	2188
67	249	276	303	330	356	383	410	436	463	490	623	713	802	891	1024	1158	1291	1425	1559	1692	1826	1959	2227
68	254	281	308	335	363	390	417	444	471	498	634	725	816	906	1042	1178	1314	1450	1586	1722	1858	1994	2266
69	258	286	313	341	369	396	424	452	479	507	645	738	830	922	1060	1198	1337	1475	1613	1752	1890	2028	2305
70	263	291	319	347	375	403	431	459	488	516	656	750	844	938	1078	1219	1359	1500	1641	1781	1922	2063	2344
72	267	295	324	353	381	410	438	467	496	524	667	763	858	953	1096	1239	1382	1525	1668	1811	1954	2097	2383
73	271	300	329	358	388	417	446	475	504	533	678	775	872	969	1114	1259	1405	1550	1695	1841	1986	2131	2422
74	276	305	335	364	394	423	453	482	512	541	689	788	886	984	1132	1280	1427	1575	1723	1870	2018	2166	2461
75	280	310	340	370	400	430	460	490	520	550	700	800	900	1000	1150	1300	1450	1600	1750	1900	2050	2200	2500

Table 12. Weed Sprayer Application Buffer Zone Distances in Feet

Broadcast Equivalent Application Rate (Gallons product/A)	Application Block Size (acres)													
Gal/A	1	5	10	20	30	40	50	60	70	80	90	100	110	120
8	50	50	50	75	75	100	100	200	200	200	250	300	350	400
13	80	100	100	138	138	200	200	300	300	300	350	400	450	500
19	125	150	150	200	200	300	300	400	400	400	450	500	550	600
23	160	188	200	250	269	363	382	475	488	500	550	600	650	700
28	185	225	250	300	338	425	463	550	575	600	650	700	750	800
33	205	263	300	350	407	488	544	625	663	700	750	800	850	900
38	220	300	350	400	475	550	625	700	750	800	850	900	950	1000
42	235	313	375	450	557	638	719	825	888	950	1000	1050	1100	1150
47	250	325	400	500	638	725	813	950	1025	1100	1150	1200	1250	1300
52	262	338	425	550	719	813	907	1075	1163	1250	1300	1350	1400	1450
56	275	350	450	600	800	900	1000	1200	1300	1400	1450	1500	1550	1600
61	288	363	488	650	850	975	1100	1300	1400	1500	1563	1625	1688	1750
66	300	375	525	700	900	1050	1200	1400	1500	1600	1675	1750	1825	1900
70	312	389	563	750	950	1125	1300	1500	1600	1700	1788	1875	1963	2050
75	325	400	600	800	1000	1200	1400	1600	1700	1800	1900	2000	2100	2200

BUFFER ZONE CREDITS

The buffer zone distances for Sectagon 42 applications may be reduced by the percentages listed below. Credits may be added, but credits cannot exceed 80%. Also, the minimum buffer zone distance is 25 feet regardless of buffer zone credits available.

- See http://www.tarpcredits.epa.gov for a list of tarps that have been tested and determined to qualify for buffer reduction credits. Only tarps listed on this website qualify for buffer reduction credits.
- 10% reduction in buffer zone distance, IF the organic content of the soil in the application block is ≥ 1% - 2%; a 20% reduction is buffer zone distance, IF the organic content of the soil in the application block is >2% - 3%; and a 30% reduction in the buffer zone distance, IF the organic content of the soil in the application block is >3%.
- 10% reduction in buffer zone distance, IF the soil temperature is measured to be 50°F or less. Record temperature measurements at the application depth or 12 inches, whichever is shallower.
- 10% reduction in the buffer zone distance, IF the clay content of the soil in the application block is greater than 27%.

Examples of Buffer Zone Calculations with Credits Applied
If the buffer zone is 50 feet and the application qualifies for a buffer zone reduction credit since the soil organic content is 1.5%, then the buffer zone can be reduced by 10%, i.e., reduced by 5 feet based on the following calculation: 50 feet – (50 feet x 10%) = 45 feet.

If the buffer zone is 50 feet and the application qualifies for two buffer zone credits since the soil organic content is 1.5% and the clay content is greater than 27%, then the buffer zone can be reduced by 20% (10% organic content credit + 10% clay content credit), i.e., reduced by 10 feet based on the following calculation 50 feet - (50 feet x 20%) = 40 feet.

POSTING FUMIGANT BUFFER ZONES

- Posting of a **buffer zone** is required unless there is a physical barrier that prevents bystander access to the buffer zone.
- Buffer Zone signs must be placed along or outside the perimeter of the buffer zone, at all usual points of entry and along likely routes of approach from areas where people not under the owner's control may approach the buffer zone.
  - Some examples of points of entry include, but are not limited to, roadways, sidewalks, paths, and bike trails.
  - Some examples of likely routes of approach include, but are not limited to, the area between a buffer zone and a roadway, or the area between a buffer zone and a housing development.
  - When posting, the certified applicator supervising the application must ensure compliance with all local laws and regulations.
- Buffer Zone signs must meet the following criteria:
  - The printed side of the sign must face away from the application block toward areas from which people could approach.
  - Signs must remain legible during the entire posting period and must meet the general standards outlined in the WPS for sign size, text size, and legibility (see 40 CFR §170.120).
  - Signs must be posted no sooner than 24 hours prior to the start of the application and remain posted until the buffer zone period has expired.
  - Signs must be removed within 3 days after the end of the buffer zone period.
  - Buffer Zone signs which meet the criteria above will be provided at points of sale for applicators to use. Templates may be downloaded from http://www.epa.gov/pesticides/reregistration/soil_fumigants/.
  - The Buffer Zone signs must contain the following information:
    - The 'Do Not Walk' symbol
    - DO NOT ENTER/NO ENTRE,
    - Metam Sodium Sectagon 42 Fumigant BUFFER ZONE,
    - Contact information for the certified applicator in charge of the fumigation.

Exception: If multiple contiguous blocks are fumigated within a 14-day period, the entire periphery of the contiguous blocks' buffer zones may be posted. Buffer Zone signs must be posted no sooner than 24-hours prior to the start of the first application. The signs must remain posted until the last buffer zone period expires and signs must be removed within 3-days after the buffer zone period for the last block has expired.

RESTRICTIONS FOR DIFFICULT TO EVACUATE SITES

- Difficult to evacuate sites are pre-K to grade 12 schools, state licensed daycare centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons.No fumigant application with a buffer zone greater than 300 feet is permitted within 1/4 mile (1320 feet) of difficult to evacuate sites unless the site is not occupied by children from state-licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36-hour period following the end of the application.
- No fumigant application with a buffer zone of 300 feet or less is permitted within 1/8 mile (660 feet) of difficult to evacuate sites unless the site is not occupied by children from state-licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36-hour period following the end of the application.

EMERGENCY PREPAREDNESS AND RESPONSE MEASURES

If the buffer zone is 25 feet, then the *Emergency Preparedness and Response Measures* are not applicable.

Triggers for Emergency Preparedness and Response Measures

The certified applicator must either follow the directions under the *Fumigant Site Monitoring* section or follow the directions under the *Response Information for Neighbors* section if:

- the buffer zone is greater than **25 feet** but less than or equal to **100 feet**, and there are residences or businesses within **50 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **100 feet** but less than or equal to **200 feet**, and there are residences or businesses within **100 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **200 feet** but less than or equal to **300 feet**, and there are residences or businesses within **200 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **300 feet** or the **buffer zones overlap**, and there are residences or businesses within **300 feet** from the outer edge of the buffer zone.

Fumigant Site Monitoring

NOTE: *Fumigant Site Monitoring* is ONLY required if the *Emergency Preparedness and Response Measures* are triggered AND directions from the *Response Information for Neighbors* section are not followed.

From the start of the application until the buffer zone period expires, a certified applicator or handler(s) under his/her supervision must:

- Monitor for sensory irritation in areas between the buffer zone outer perimeter and residences and businesses that trigger this requirement.
- Monitoring for sensory irritation must begin in the evening on the day of application and continue until the buffer zone period expires. Monitor a minimum of 8 times during the buffer zone period, including these periods:
  - 1 hour before sunset,
  - during the night,
  - 1 hour after sunrise, and
  - during daylight hours.

Implement the emergency response plan immediately if a handler monitoring experiences sensory irritation.

Response Information For Neighbors

NOTE: *Response Information for Neighbors* is ONLY required if the *Emergency Preparedness and Response Measures* are triggered AND directions from the *Fumigant Site Monitoring* section are not followed.

The certified applicator supervising the application must ensure that residences and businesses that trigger the requirement have been provided the response information at least **1 week** before the application starts. The information provided may include application dates that range for no more than **4 weeks**. If the application does not occur when specified, the information must be delivered again.

Information that must be included:

- The location of the application block.
- Fumigant(s) applied including the active ingredient, name of the fumigant product(s), and the EPA Registration number.
- Contact information for the applicator and property owner.
- Time period in which the application is planned to take place (must not range more than 4 weeks).
- Early signs and symptoms of exposure to the fumigant(s) applied, what to do, and who to call if you believe you are being exposed (911 in most cases).
- How to find additional information about fumigants.

The method used to share the response information for neighbors can be accomplished through mailings, door hangers, or other methods that will effectively inform the residences and businesses within the required distance from the edge of the buffer zone.

NOTICE TO STATE AND TRIBAL LEAD AGENCIES

If your state and/or tribal lead agency requires notice, information must be provided to the appropriate state or tribal lead agency prior to the application. Please refer to www.epa.gov/fumigantstatenotice for a list of states and tribal lead agencies that require notice and information on how to submit the information.

The information that must be provided to state and tribal lead agencies includes the following:

- Location of the application blocks,
- Fumigant(s) applied including EPA registration number,
- Applicator and property owner contact information, and
- Time period that fumigation may occur.

EMERGENCY RESPONSE PLAN

The certified applicator must include in the FMP a written emergency response plan that identifies:

- evacuation routes,
- locations of telephones,
- contact information for first responders and local/state/federal/tribal personnel, and
- emergency procedures/responsibilities (e.g., adding water to the field, repairing tarps, fixing equipment, evacuating upwind) if:
    - o there is an incident,
    - o sensory irritation is experienced outside of the buffer zone, and/or there are equipment/tarp/seal failure or complaints, or other emergencies.

SITE-SPECIFIC FUMIGATION MANAGEMENT PLAN (FMP)

Prior to the start of application, the certified applicator supervising the application must verify that a site-specific fumigation management plan (FMP) exists for each application block. 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, 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 application.
Each site specific FMP must contain the following elements:

- o Certified Applicator Supervising the Application
    - o Name,
    - o Phone number,
    - o Pesticide applicator license and/ or certificate number,
    - o Specify if commercial or private applicator
    - o Employer name,
    - o Employer address, and
    - o Date and location of completing EPA approved soil fumigant training program.
- o General site information
    - o Application block location (e.g., county, township-range-quadrant), address, or global positioning system (GPS) coordinates
    - o Name, address, and, phone number of application block owner
    - o Map, aerial photo, or detailed sketch showing:
        - – application block location
        - – application block dimensions
        - – buffer zone dimensions
        - – property lines
        - – roadways
        - – rights-of-ways
        - – sidewalks
        - – permanent walking paths
        - – bus stops
        - – nearby application blocks
        - – surrounding structures (occupied and non-occupied)
        - – locations of Buffer Zone signs, and
        - – locations of difficult to evacuate sites with distances from the application block labeled
- o General application information
    - o Target application date/window,
    - o Fumigant product name, and
    - o EPA registration number.
- o Tarp Plan (if tarp is used)
    - o Schedule for checking tarps for damage, tears, and other problems
    - o Minimum size of damage that will be repaired
    - o Factors used to determine when tarp repair will be conducted
    - o Equipment/methods used to perforate tarps
    - o Target dates for perforating tarps
    - o Target dates for removing tarps
- o Soil conditions
    - o Description of soil texture and moisture in application block,
    - o Method used to determine soil moisture, and
    - o Soil temperature measurements if air temperatures were above 100°F in any of the 3 days prior to the application

- Buffer zones
    - o Application method,
    - o Injection depth,
    - o Application rate from lookup table on label,
    - o Application block size from lookup table on label,
    - o Credits applied and measurements taken (if applicable),
        - – Tarp brand name, lot number, thickness, manufacturer, batch number, and part number
        - – Organic matter content
        - – Clay content
        - – Soil temperature
    - o Buffer zone distance, and
    - o Description of areas in the buffer zone that are not under the control of the owner of the application block. If buffer zones extend onto areas not under the control of the owner, attach the written agreement and keep it with the FMP
- Record Emergency Response Plan as described in the *Emergency Response Plan* section
- Posting of Fumigant Treated Area and Buffer Zone
    - o Person(s) who will post and remove (if different) Fumigant Treated Area and Buffer Zone signs, and
    - o Location of Buffer Zone signs
- Emergency Preparedness and Response Measures (if applicable)
    - o Fumigant site monitoring (if applicable):
        - – When and where it will be conducted;
    - o Response information for neighbors (if applicable):
        - – List of residences and businesses informed,
        - – Name and phone number of person providing information, and
        - – Method of providing the information
- State and/or tribal lead agency advance notification (if state and/or tribal lead agency requires notice, provide a list of contacts that were notified and date notified)
- Plan describing how communication will take place between the certified applicator supervising the application, the owner, and other on-site handlers (e.g., tarp perforators/removers, irrigators) for complying with

label requirements (e.g., buffer zone location, buffer zone start and end times, timing of tarp perforation and removal, PPE)
  - Name and phone number of persons contacted by the certified applicator, and
  - Date contacted
- Handler (including Certified Applicators) Information and PPE
  - Names, addresses and phone numbers of handlers
  - Names, addresses, and phone numbers for employers of handlers
  - Tasks that each handler is authorized and trained to perform
  - Date of PPE training for each handler
  - Applicable handler PPE including:
    - Long-sleeved shirts/long pants, shoes, socks
    - Chemical-resistant apron
    - Chemical-resistant footwear and socks
    - Protective eyewear (not goggles)
    - Chemical-resistant gloves
    - Air-purifying respirators
      - Respirator make, model, type, style, size, and cartridge/canister type
    - Other PPE
  - For handlers: Confirmation of receipt of Fumigant Safe Handling Information
  - For certified applicator(s) supervising the application: Completion date and location of the soil fumigant training program listed on the following EPA website http://www.epa.gov/fumiganttraining for the active ingredient(s) in this product
  - For handlers designated to wear air-purifying respirators:
    - date of medical qualification to wear a respirator,
    - date of respirator training, and
    - date of fit-testing for the respirator
  - Unless exempted in the *Protection of Handlers* section, verify that:
    - at minimum 1 handler has the appropriate respirators and cartridges/canisters during handler activities, and
    - the employer has confirmed that the appropriate respirator and cartridges/canisters are immediately available for each handler who will wear one
- Air monitoring plan
  - If sensory irritation is experienced, indicate whether operations will cease or operations will continue with use of an air-purifying respirator
  - For monitoring the breathing zone:
    - Representative handler tasks to be monitored
    - Monitoring equipment to be used, and
    - Timing of the monitoring
- Good Agricultural Practices (GAPs)
  - Identify (e.g., list, attach applicable label section) applicable mandatory GAPs
- Pesticide Product Labels and Material Safety Data Sheets (MSDS)
  - Ensure that labels and MSDSs are on-site and readily available for employees to review.

Record-Keeping Procedures

The owner of the application block as well as the certified applicator supervising the application must keep a signed copy of the site-specific FMP for 2 years from the date of application. For situations where an initial FMP is developed and certain elements do not change for multiple application blocks (e.g. applicator information, certified applicator, handlers, record-keeping procedures, emergency procedures) 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).

The certified applicator must make a copy of the FMP immediately available for viewing by handlers involved in the fumigation. The certified applicator or the owner 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. The certified applicator supervising the application must ensure the FMP is at the application block during all handler activities.

Within 30 days after the application is complete, the certified applicator supervising the application must complete a Post-Application Summary.

POST-APPLICATION SUMMARY

The Post-Application Summary must contain the following elements:
- Actual date and time of the application,
- Application rate,
- Size of application block
- Weather Conditions
  - Summary of the National Weather Service weather forecast during the application and the 48 hours after the application is complete including:
  - wind speed, and
  - air stagnation advisory (if applicable)
  - Forecast must be checked on the day of, but prior to the start of the application, and on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Tarp damage and repair information (if applicable)
  - Date of tarp damage discovery,
  - Location and size of tarp damage,
  - Description of tarp/tarp seal/tarp equipment failure, and
  - Date and time of tarp repair completion.
- Tarp perforation/removal details (if applicable)
  - Date and time tarps were perforated,
  - Date and time tarps were removed, and
  - Record if tarps were perforated and/or removed early. Describe the conditions that caused early tarp perforation and/or removal
- 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, and
  - Description of control measures or emergency procedures followed after complaint
- Description of incidents, equipment failure, or other emergency and emergency procedures followed (if applicable)
- Air monitoring results:
  - When sensory irritation experienced:
    - Date, time, location, and handler task/activity where irritation was observed and
    - Resulting action (e.g., implement emergency response plan, cease operations, continue operations with air-purifying respirators)
  - When using a direct read detection device:
    - Sample date(s), time(s), locations, and concentrations
    - Handler task/activity monitored (if applicable), and
    - Resulting action (e.g., cease operations, continue operations with air-purifying respirators).
- Water-run application monitoring
  - Record monitoring date(s) and time(s)
  - Name of person(s) monitoring
  - Record observations:
    - Is the equipment functioning properly,
    - Description of corrective action (if applicable), and
    - Other comments
- Fumigant Treated Area and Buffer Zone Signs
  - Dates of posting and removal
- Any deviations from the FMP (e.g., changes in emergency response actions, changes in handler information, changes in handlers responsible for completing emergency tasks, changes in communication between certified applicator, owner, and other handlers).

Record-Keeping Procedures

The owner of the application block as well as the certified applicator supervising the application must keep a signed copy of the Post-Application Summary for 2 years from the date of application).

PRODUCT INSTRUCTIONS

Sectagon 42 is a water-soluble liquid. When applied to properly prepared soil, the liquid is converted into a gaseous fumigant. After a sufficient waiting period, the gas dissipates, leaving the soil ready for planting. Sectagon 42 is recommended for the suppression of weeds, plant

parasitic nematodes, and soilborne fungi that cause reductions in the yield and quality of ornamental, food and fiber crops.
Sectagon 42 will suppress only those pests in the fumigation zone at the time of treatment. Recontamination may occur subsequent to the fumigant's dissipation from the soil.
Weeds and germinating weed seeds that are suppressed include Annual bluegrass, Bermuda grass, Chickweed, Dandelion, Ragweed, Henbit, Lambsquarter, Amaranthus sp. (Pigweed, Careless weed), Watergrass, Johnsongrass, Nutgrass, Wild morningglory, Purslane, Barnyardgrass, Crabgrass, Groundsel, Prickly lettuce, Pineappleweed, Nettleaf, Goosefoot, Nightshade, Shepherdspurse, Stinging nettle, Malva, London rocket, and Fiddleneck. The best weed suppression is obtained when Sectagon 42 is applied to weeds that are actively growing.
The soil-borne plant pathogenic fungi suppressed include species of Verticillium, Rhizoctonia, Pythium, Phytophthora, Sclerotinia.
The plant parasitic nematodes which Sectagon 42 suppresses include Root knot, Lesion, Dagger, Lance, Needle, Pin, Reniform, Stunt, Stubby root, Sting and Spiral.
Note: Sectagon 42 will only suppress nematodes that are in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that Sectagon 42 achieves at the time of application. In Oregon and Washington, Sectagon 42 will only suppress Miloidogyne Chitwoodi. Other pests suppressed include symphilids or garden centipedes.

TREATMENT GUIDELINES

For optimum results from soil fumigation with Sectagon 42 certain procedures should be observed at designated times in the treatment program. Described in this section are important guidelines for each of the four stages of the treatment process:

Planning a Sectagon 42 Application
Preparing a Field for Application
Applying Sectagon 42
Preparing for Planting after Application of Sectagon 42

Your sales representative will help you select the best treatment program for your particular needs.

PLANNING A SECTAGON 42 APPLICATION

Time of Application
Apply Sectagon 42 after harvest and 14 to 21 days before a new crop is planted. In some areas of North America, fall applications are preferred because the fumes dissipate over the winter, allowing planting to begin as soon as favorable springtime conditions arrive.
Application Rate
Apply 1 to 75 gallons of Sectagon 42 per treated acre depending on crop, target pest, and soil properties. Soil properties to consider when determining the application rate include the depth of soil to be treated, soil texture and percent organic matter.
Application in Tank Mix with Liquid Fertilizer
Sectagon 42 may be injected in a mixture with liquid fertilizers. Since the composition of liquid fertilizers vary considerably, the physical compatibility of each fertilizer/Sectagon 42 tank mix should be checked by using the following procedure:
Mix a small quantity of Sectagon 42 and liquid fertilizer in a glass container. Sectagon 42 and fertilizer should be mixed in the same ratio as they will be applied to the field (i.e., if 40 gallons of Sectagon 42 and 40 gallons of liquid fertilizer are to be applied per acre, then Sectagon 42 and fertilizer should be mixed in the jar in a 40:40 or 1:1 ratio). Agitate the liquids to attain a complete mixture.
If a uniform mix cannot be made, the mixture should not be used. If the mixture remains uniform for 30 minutes, the combination may be used. Should the mixture separate after 30 minutes, but readily remixes uniformly with agitation, the mixture can be used if adequate agitation is maintained in the tank.
DO NOT PLACE CAPS ON JAR, AS INCOMPATIBLE MIXES MAY EVOLVE HYDROGEN SULFIDE GAS.
USE PROMPTLY AFTER MIXING WITH WATER OR FERTILIZER. DO NOT ALLOW SOLUTION TO STAND.
Flush all equipment with water after each day's use. Disassemble valves and clean carefully.
Target Pest and Depth of Treatment
For suppression of weeds and fungi causing seed or seedling diseases, treatment of only the top 1 to 4 inches of soil may be required (see application specific requirements in the Good Agricultural Practices section of this label). For suppression of nematodes and fungi which occur throughout the rhizosphere, treatment to depths of greater than 4 inches may be required. For a given soil type, the required application rate will increase proportionately with the depth of treatment required.
For example, if 25 gallons of Sectagon 42 per acre is required to treat 4 inches, then 50 gallons of Sectagon 42 will be required to treat to a depth of 8 inches. Choose the appropriate application method to distribute Sectagon 42 evenly throughout the soil to the required depth.
Organic Matter in the Soil
Because of the absorbing effect of humus, soils with high levels of organic matter under the surface require higher than usual doses of Sectagon 42 with the maximum application rate being 75 gallons per acre. For example, muck soils require twice the amount of fumigant that would be used in mineral soils.
Soil Texture
Application rates will vary with the soil texture. For instance, clay soils require more Sectagon 42 than light sandy soil.
Soil Temperature During Treatment
At the time of fumigation, the soil temperature should be in the range of 40°F-90°F (1.6°-32°C).
Phytotoxicity
Sectagon 42 is phytotoxic. Protect valuable, non-target plants by stopping soil applications of Sectagon 42 at least 3 feet short of the drip line of trees, shrubs, and other desirable plants. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

APPLYING SECTAGON 42

Use of Diluted Sectagon 42
Do not store the diluted product. Use Sectagon 42 promptly after it has been mixed with water. In dilute solutions in water Sectagon 42 decomposes over a period of days. Although Sectagon 42 is stable in its concentrated form, it is unstable in acid dilutions.

CHEMIGATION–GENERAL PROCEDURES

When applying by chemigation methods the following precautions must be observed.
Apply this product only through sprinkler systems including center pivot, lateral move, end tow, side (wheel) roll, solid set, or hand move; flood (basin); furrow; border, or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.
Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.
If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
Do not connect an irrigation system used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

NOTE: Tessenderlo Kerley, Inc. does not encourage connection of chemigation systems to public water systems. The following information is provided for users who have evaluated all alternative application and water source options before choosing to make such a connection.
Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank measuring of at least twice the inside diameter of the fill pipe.

GENERAL INSTRUCTIONS FOR SPRINKLER SYSTEMS

NOTICE: Do not operate irrigation systems without safety valves or other devices to prevent back siphoning of Sectagon 42 into water sources. Irrigation water treated with Sectagon 42 should be maintained on the treated area until the water is absorbed by the soil. The tank containing Sectagon 42 must be connected to the discharge side of the irrigation pump or other pressurized equipment attached to the irrigation line. Do not apply in irrigation systems that result in overlapping application of

Sectagon 42. Do not apply when weather conditions favor drift from target areas.

PREPARING FOR PLANTING AFTER APPLICATION OF SECTAGON 42

Effect of Rain
If a Sectagon 42 application is rained on less than 24 hours after treatment, lack of suppression at and near the soil surface may result.
Recontamination
Precautions must be taken to prevent recontamination of treated soil with weed seeds, plant pathogenic fungi and plant parasitic nematodes. Use clean seeds and/or plants. Before farm equipment is driven into the treated area, it should be rinsed free of the untreated soil from other fields.
Interval Between Treatment and Planting
Because Sectagon 42 can be harmful to germinating and/or living plants, an appropriate interval must be observed between soil fumigation and planting. On well-drained soils which have a light to medium texture and which are not excessively wet or cold (when soil is colder than 40°F or contains more moisture than 80% available water capacity) following application, planting can begin 14 to 21 days after treatment. If soils are heavy or especially high in organic matter, or if they remain wet and or cold (below 60°F or 15°C) following application, a minimum interval of 30 days should be observed.
Aeration before planting
Soils including soils high in clay or organic matter, should be allowed to aerate and dry thoroughly after treatment with Sectagon 42. During cold and/or wet (when soil is colder than 40°F or contains more moisture than 80% available water capacity) weather, frequent shallow cultivation can aid the escape of Sectagon 42 from the soil.
Testing for Dissipation of Sectagon 42
After the waiting period has passed, if there are any questions about the complete escape of Sectagon 42 from the soil, transplant a seedling into the treated soil. If the plant develops normally without any signs of chemical injury, crop planting can begin.

USES, APPLICATION METHODS & RATES FIELD APPLICATION WHERE ENTIRE AREA IS BEING TREATED

POWER ROLL SEAL METHOD (NON-TARP)
Use a RO-TO-VATE & ROLL Applicator only. Contact your local agricultural extension service, distributor or the manufacturer for approved RO-TOVATE & ROLL Application specifications.
When to Treat: Apply Sectagon 42 2 to 6 weeks prior to planting, whenever soil type and conditions permit. For best results with annual crops, treat the soil each year. Do not use Sectagon 42 to treat any type of soil when it is cold and/or wet (when soil is colder than 35°F or contains more moisture than 80% available water capacity).
Application: Use undiluted Sectagon 42 to the desired depth below the final soil surface. (Contact your dealer or the manufacturer for the specifications for suitable application equipment).
IMPORTANT SOIL TREATMENT PRECAUTIONS
Crops to be hilled: For crops that require soil movement (hilling) prior to or after planting, incorporate Sectagon 42 to a depth that will allow the tillage required to occur without penetrating below the depth of treatment (see application specific requirements in the Good Agricultural Practices section of this label).
Crops to be bedded: For crops to be bedded, care must be taken that exposed sides of raised beds are not cracked or open compared to the power rolled surface. If necessary, add power rollers of the required height or other sealing equipment to the ends of the bedding equipment to seal the sides.
Note: The use of Sectagon 42 for the suppression of weeds, weed seeds and shallow inhabiting soil fungi requires that NO SOIL CULTIVATION OCCUR FOLLOWING TREATMENT until time of planting.
This method of treating soil with Sectagon 42 will not be effective for the suppression of nematodes outside the treated zone. This method of Sectagon 42 application can be used in combination with other soil fumigants to suppress the nematodes persisting in the surface 1 to 6 inches of soil normally not suppressed with injected soil fumigants.
Zone of treatment will be limited by diameter of applicator. If pest is deeper than applicator can treat to, use a different method. For further information contact your local agricultural extension service or the manufacturer.

SOIL INJECTION

Use injectors (shanks, blades, fertilizer wheels, plows, etc.) to apply Sectagon 42 at the rate of 15 to 75 gallons per acre into well prepared soil. Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil.
Example: apply through injectors placed 4 inches below surface and 5 inches apart.

SPRINKLER SYSTEM

Use only those sprinkler systems which give large water droplets to prevent excess loss. Use 37.5 to 75 gallons Sectagon 42 per acre for suppression of nematodes and fungi at a depth of 24 inches. For suppression of weeds and fungi at a depth of 8 inches or less, use 15 to 75 gallons per acre. Inject the Sectagon 42 in enough water to reach to desired treatment depth. The product should be continuously metered into the irrigation system throughout the entire application period. Flush the system with only enough water to clear lines. If the soil surface dried quickly, reseal it with 15 minutes of water once a day for the next day or two.
To prevent runoff of treatment solution during sprinkler application, do not exceed the infiltration rate of the solution into the soil. Should runoff occur, isolate it from growing crops and water sources. Once collected, reapply it to the treated area. See use precautions in "CHEMIGATION" section.

CHECK OR FLOOD IRRIGATION

Meter Sectagon 42 at a steady rate into water during irrigation. Use 40 to 75 gallons of Sectagon 42 per acre, depending upon the kind of pest and depth desired, in 3 to 18 inches of water per acre. See use precautions in "CHEMIGATION" section.

DISC APPLIED METHOD

Spray Sectagon 42 immediately in front of disc. Use 15 to 75 gallons per acre. Follow immediately with a roller to smooth and compact the soil surface.

DRIP IRRIGATION

Sectagon 42 may be injected into drip irrigation systems prior to planting. The area must be calculated in accordance with the size of the band treated. Apply 40 gallons per broadcast acre in one acre inch of water (27,000 gallons). The resulting concentration is 700 ppm on a weight basis. (Example: if the emitters irrigate 10% of each acre then use 5 gallons Sectagon 42 in 2,700 gallons water). Inject continuously. Do not slug treat. See use precautions in "CHEMIGATION" section.

APPLICATION TO BED OR ROWS

POWER ROLL SEAL METHOD (NON-TARP)
Use a modified RO-TO-VATE & ROLL Applicator only. Contact your local agricultural extension service, distributor or the manufacturer for approved RO-TO-VATE & ROLL Applicator specifications.
When to treat: Apply Sectagon 42 2 to 6 weeks prior to planting whenever soil type and conditions permit. For best results with annual crops, treat the soil each year. Do not use Sectagon 42 to treat any type of soil when it is cold and/or wet (when soil is colder than 35°F or contains more moisture than 80% available water capacity).
Application: Use undiluted Sectagon 42 Apply with suitable application equipment that will ensure incorporation of Sectagon 42 to the desired depth below the final soil surface. (Contact your dealer or the manufacturer for the specifications for suitable application equipment).

IMPORTANT SOIL TREATMENT PRECAUTIONS

Crops to be hilled: For crops that require soil movement (hilling) prior to or after planting, incorporate Sectagon 42 to a depth that will allow the tillage required to occur without penetrating below the depth of treatment (see application specific requirements in the Good Agricultural Practices section of this label).
Crops to be bedded: For crops to be bedded, care must be taken that exposed sides of raised beds are not cracked or open compared to the power rolled surface. If necessary, add power rollers of the required height or other sealing equipment to the ends of the bedding equipment to seal the sides.
Note: The use of Sectagon 42 for the suppression of weeds, weed seeds and shallow inhabiting soil fungi requires that NO SOIL CULTIVATION OCCUR FOLLOWING TREATMENT until time of planting.
This method of treating soil with Sectagon 42 will not be effective for the suppression of nematodes outside the treated zone. This method of

Sectagon 42 application can be used in combination with other soil fumigants to suppress the nematodes persisting on the surface 1 to 6 inches of soil normally not suppressed with injected soil fumigants.
Zone of treatment will be limited by diameter of applicator. If pest is deeper than applicator can treat to, use a different method. For further information contact your local agricultural extension service or the manufacturer.

SOIL INJECTION

Sectagon 42 at the rate of 50 to 75 gallons per treated acre (1 to 1.5 pints per 100 sq. ft.), may be injected into preformed plant beds following the directions given above under soil injection. If a wider treated band is desired, space 2 or more injectors (shanks, blades, fertilizer wheels, etc.) at desired intervals to cover the desired treating width. Seal immediately.
If Sectagon 42 is injected into established plant beds to terminate growth of a previous crop, and to fumigate the bed in preparation for planting a subsequent crop, the terminated crop should not be used for any food or feed purposes after Sectagon 42 has been applied.

SOIL COVERING METHOD (BED-OVER METHOD)

Sectagon 42 may be sprayed or dripped onto the soil immediately ahead of bed-shaping equipment. Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil. The recommended rate of Sectagon 42 is 40 to 75 gallons per acre of treated soil, approximately equivalent to .5 to 1.5 pints per 100 linear ft. of 12-inch wide row.

DRIP IRRIGATION

During pre-irrigation, check drip tape for uniform distribution and repair if necessary. Apply 15 to 75 gallons Sectagon 42 per treated acre (0.25 to 1.5 pints per 100 sq. ft. of treated soil) using enough water to thoroughly wet entire desired treatment zone. During the entire irrigation period, inject Sectagon 42 continuously into drip line as close as possible to treatment area. Two or more lines per bed may be needed to ensure full coverage.
Weed suppression will not be satisfactory if too much water is applied (if 80% available water capacity is exceeded). An adequate concentration of Sectagon 42 must be present at the time of weed seed germination in order to be effective. See use precautions in "CHEMIGATION" section.

DRENCH METHOD

Sectagon 42 may be applied to finished beds in enough water to soak at least 2 inches deep for suppression of shallow seeded weeds. To avoid contamination by untreated soil, do not disturb the treated area. Apply 15 to 75 gallons of Sectagon 42 per treated acre.

ADDITIONAL RECOMMENDATIONS

TOBACCO PLANT BEDS
Fall applications are recommended wherever possible. Read and follow DIRECTIONS FOR USE carefully. Treatment in the South should generally be made before November 30.
DRENCH METHOD: Apply 2 gallons Sectagon 42 in 150 to 200 gallons of water per 100 sq. yd. Application may be made with sprinklers, sprayers with nozzles or any suitable equipment. Follow directions given above for seed bed treatment.
SYMPHYLID SUPPRESSION
Soil should be in good seed bed condition to a depth of 8 to 10 inches. Maintain adequate moisture during spring season. Treat during July-August when symphylids are in the upper soil surface. Apply 15 gallons Sectagon 42 per acre using blade or chisel injector. Inject below level of symphylid concentration, usually 6 to 8 inches. Pack soil immediately after application.
NOTE: Sectagon 42 will only suppress nematodes which are in the fumigated zone at the time of treatment.
POTATOES
For suppression of potato pests such as Root knot nematodes, Weed seeds, Verticullum dahlias (Early maturity disease).
Apply 30 to 75 gallons Sectagon 42 per acre using injectors (shanks, blades, fertilizer wheels, plows, etc.) Follow immediately with a bedshaper, roller press wheel or similar device or cover with an adequate amount of soil to seal the fumigant into the soil.
Sprinkler system preplant application – Use 37.5 to 75 gallons of Sectagon 42 per acre. Inject into a sprinkler system that can deliver an even water distribution for the area being treated. Inject all of the Sectagon 42 needed for the area covered and apply in enough water to reach the desired treatment depth. Soil temperature should be in the range of 35°F to 90°F in the treatment zone. Soil moisture immediately prior to treatment must be 60 to 80% of available water capacity down to 24" level. Soil condition must facilitate even moisture penetration without runoff. Do not apply when plants are present. See use precautions in "CHEMIGATION" section.
NOTE: Sectagon 42 will suppress Root knot nematodes in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that Sectagon 42 achieves at the time of application.
If high numbers or deep nematodes are identified, anticipate nematodes to build up throughout the growing season. Some damage will occur unless additional action is taken.
Sectagon 42 has no soil residual and reinfestation of a field can occur from numerous sources such as deep nematode populations, seed pieces, irrigation water, equipment contamination and blowing wind.
EARLY MATURITY DISEASES OF POTATOES IN OREGON
Apply 30 gallons Sectagon 42 per acre using injectors (shanks, blades, fertilizer wheels, plows, etc.) Follow immediately with a bedshaper, roller press wheel or similar device or cover with an adequate amount of soil to seal the fumigant into the soil.
NOTE: Sectagon 42 will suppress Root knot nematodes in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that Sectagon 42 achieves at the time of application.
MINT
Verticilium wilt control.
When infestation is limited to small spots in a field, spread can be reduced by treating the soil with 75 gallons Sectagon 42 per treated acre (1½ pints per 100 sq. ft.) using injector blade or thin shank injector rig with injectors spaced at intervals to cover the desired treating width.
WHEAT AND BARLEY
For suppression of certain root diseases caused by Early season soil fungi – before applying Sectagon 42 cultivate the area to be treated to break up clods. Apply 2 to 7.5 gallons per treated acre 14 to 21 days before planting. Sectagon 42 may be diluted with water or non-acidic liquid fertilizer immediately before applying. Inject Sectagon 42 to a depth of 5 to 8 inches into moist soil. Space injector shanks at intervals to cover the desired treating width.
Do not mix Sectagon 42 with acidic fertilizer or other acidic solutions. Use only in areas which receive 15 or more inches of rainfall per year.
PEANUTS
Cylindrocladlium Black Rot (CBR) Suppression:
Apply Sectagon 42 at the following rates:
CBR-resistant cultivar (NC8C): 7.5 gallons per treated acre or 4 pints per 1,000 feet of treated row CBR-susceptible peanut cultivars (Florigant, GK-3, NC-5 Keel 29): 15 gallons per treated acre or 8 pints per 1,000 feet of treated row.
CBR-highly susceptible cultivars (VA 81B, NC7): use of Sectagon 42 is not recommended.
Soil Preparation: Before applying Sectagon 42 residue from the previous crop should be decomposed (enhanced by fall discing) and plowed under in the spring with moldboard plow. Soil incorporated preplant herbicides must be applied before application of Sectagon 42.
Application: Apply Sectagon 42 with a gravity flow regulator through chisel-type or counter-type applicators. Center each applicator, one per row, in front of a bedshaper to mark the location of chemical deposition. Sectagon 42 should be deposited 6 to 8 inches below the soil surface of beds. Bed and applicator spacing should coincide with row spacing at planting. Soil temperatures must be in the range of 60°F to 90°F at injection depth before application.
Tillage and Planting after Application: Do not mix treated soil with untreated soil by tillage or other cultural practices. Plant peanuts in the center of treated beds no earlier than 14 days following application of Sectagon 42. An at-planting nematicide treatment will be necessary in fields with heavy infestation of Root knot, Ring and/or String nematode.
FOR SUPPRESSION OF SPECIFIC ORCHARD DISEASES (SUCH AS SPECIFIC APPLE REPLANT DISEASE)
Use 62 to 75 gallons of Sectagon 42 per treated acre. It is best to have the replant site prepared to a planting consistency which includes irrigating to 70% available water capacity before Sectagon 42 application. Treatment can be made in the Fall or Spring before planting but Fall application is the preferred timing. Spring application can be riskier because the interval between treatment and planting is critical; see CAUTIONS listed below. Do not harvest fruit within one (1) year of application. Application with handheld equipment is prohibited.
There are three application techniques that may be used: 1) Entire orchard site, 2) Individual tree row site, and 3) Individual tree plant site.

Entire orchard site: Inject the desired amount of Sectagon 42 into a sprinkler system to treat the entire replant site. Figure the irrigation schedule required to cover the desired treatment depth. Start the irrigation system and inject the Sectagon 42 one-third to one-half way through the cycle making sure to leave enough time at the end of the cycle to seal the application with plain water.

Individual tree row site: Two methods of application may be used to apply Sectagon 42 to individual tree row sites: Method One is to apply Sectagon 42 through a portable irrigation system such as a sprinkler or drip system; Method Two is to apply the desired amount of Sectagon 42 through a weed sprayer while the irrigation system is running. For either method and after identifying the position of the future tree row site, apply Sectagon 42 one-third to one-half way through the required irrigation cycle leaving enough time at the end of the cycle to apply plain water, sealing the Sectagon 42 in the ground.

Individual tree plant site: Use 18 to 24 fluid ounces of Sectagon 42 per 100 gallons of water. Use 16 gallons of this solution in a 4 by 4 foot planting hole. Water and product amount adjustments can be made to accommodate different size planting holes to ensure product movement to desired depth. Replace dirt removed.

TARPING: Tarping of replant sites is required when near (1/2 mile) to populated areas, such as schools, hospitals, commercial or office buildings, factories, residential areas, etc. Tarping is not required if treatment is farther than 1/2 mile from such populated areas.

CAUTIONS: INTERVAL BETWEEN TREATMENT AND PLANTING

Because Sectagon 42 is harmful to living plants, an appropriate interval must be observed between Sectagon 42 application and planting. On well-drained soils which have a light to medium texture and are not excessively wet or cold following application, planting can begin 21 to 30 days after treatment. If soils are heavy or especially high in organic matter or if they remain wet and/or cold (below 60°F) following application, a minimum interval of 30 to 45 days should be observed. Where the dosage approaches the 75 gallons per acre rate, wait at least 60 days.

HARVEST OF ANY FRUIT WITHIN ONE (1) YEAR OF TREATMENT IS PROHIBITED.

Conditions of Sale and Warranty

CONDITIONS OF SALE – LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES

The directions on this label are believed to be reliable and must be followed carefully. Insufficient control of pests and/or injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions, or the failure to follow the label directions, or good application practices, all of which are beyond the control of Tessenderlo Kerley, Inc., or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. Tessenderlo Kerley, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use, subject to the factors noted above which are beyond the control of Tessenderlo Kerley, Inc. Except as warranted by this label, Tessenderlo Kerley, Inc. makes no other warranties or representations of any kind, express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose. To the extent consistent with applicable law, the exclusive remedy against Tessenderlo Kerley, Inc. for any cause of action relating to the handling or use of this product is a claim of damage, and in no event shall damages or any other recovery of any kind against Tessenderlo Kerley, Inc. exceed the price of the product which causes the alleged loss, damage, injury, or other claim. To the extent allowed by applicable law, Tessenderlo Kerley, Inc. shall not be liable and any and all claims against Tessenderlo Kerley, Inc. are waived, for special, indirect, incidental or consequential damages or expense of any nature, including, but not limited to, loss of profits or income, whether or not based on the negligence of Tessenderlo Kerley, Inc., breach of warranty, strict liability in tort, or any other cause of action. Tessenderlo Kerley, Inc. and the seller offer this product, and the buyer and users accept it, subject to the foregoing conditions of sale and limitations of warranty, liability and remedies.

NOTICE TO BUYER: Purchase of this material does not confer any rights under patents of countries outside of the United States.
Sectagon and NovaSource are registered trademarks of Tessenderlo Kerley, Inc.

Manufactured for:
Tessenderlo Kerley, Inc.
2255 N. 44th Street, Suite 300
Phoenix, AZ 85008 USA
1-800-525-2803

Please read instructions on reverse before con ng form. Form Approved No. 2070-0060.

United States **Environmental Protection Agency** Washington, DC 20460	☐	**Registration**	OPP Identifier Number
	☐	**Amendment**	
	X	**Other**	

Application for Pesticide - Section I

1. Company/Product Number 61842-6	2. EPA Product Manager Shaja B. Joyner	3. Proposed Classification ☐ None ☒ Restricted
4. Company/Product (Name) Tessenderlo Kerley, Inc. / Sectagon 42	PM# 20	
5. Name and Address of Applicant *(Include Zip Code)* Tessenderlo Kerley, Inc. 2255 N. 44th Street, Suite 300 Phoenix, AZ 85008 USA ☐ *Check if this is a new address*	6. **Expedited Review.** In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

☐ Amendment - Explain below.	☐ Final printed labels in response to Agency letter dated _____
☐ Resubmission in response to Agency letter dated _____	☐ "Me Too" Application.
☐ Notification - Explain below.	☒ Other - Explain below.

Explanation: Use additional page(s) if necessary. (For Section I and Section II.)

Submission of revised product labeling in accordance with the March 25, 2010, Data Call-In, Amended Reregistration Eligibility Decision (RED) for Methyldithiocarbamate Salts and Methyl Isothiocyanate, and with subsequent agreements with the Pesticide Re-Evaluation Division (formerly SRRD).

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging		Water Soluble Packaging		2. Type of Container
☐ Yes* ☐ No	☐ Yes ☐ No		☐ Yes ☐ No		☐ Metal ☐ Plastic
	If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt	No. per container	☐ Glass ☐ Paper
**** Certification must be submitted***					☐ Other (Specify) _____

3. Location of Net Contents Information ☐ Label ☐ Container	4. Size(s) Retail Container	5. Location of Label Directions ☐ On Label ☐ On Labeling accompanying product

6. Manner in Which Label is Affixed to Product ☐ Lithograph ☐ Paper glued ☐ Stenciled ☐ Other

Section - IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Dawn Kominski	Director of Regulatory Affairs	(602) 889-8401

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

2. Signature Dawn Kominski	3. Title Director of Regulatory Affairs	6. Date Application Received **(Stamped)**
4. Typed Name Dawn Kominski	5. Date May 31, 2011	

EPA Form 8570-1 (Rev. 3-94) Previous editions are obsolete. **White - EPA File Copy (original)** **Yellow - Applicant Copy**

(0118.002 / 00077171.DOC)

November 2, 2011

EPA Comments on Sectagon – 42 (61842-6)
May 2011 Submission from Tessenderlo Kerley, Inc.

1. Page 1
   a. Please insert "READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH LABEL WARNINGS AND DIRECTIONS" after "DANGER PELIGRO".
2. Page 2
   a. Due to the size of this label insert a table of contents. Attachment 1 to this document contains the level of detail needed in the table.
   b. In the PPE section the second paragraph, after the term "weed sprayer" add the following text: "(see *Terms used in this labeling* section)".
   c. In the PPE for Respiratory Protection section, the last sentence should be revised as follows: "Cartridges or canisters must be replaced when odor or sensory irritation from this product becomes apparent during use, if the measured concentration of MITC is greater than 6000 ppb (6 ppm), or, ~~after 8 hours of cumulative use~~ <u>in the absence of any other instructions or indications of service life, at the end of each day's work period,</u> whichever occurs first."
3. Page 3
   a. Directly under "Directions for Use," add "Restricted Use Pesticide."
   b. In the second paragraph under the Directions for Use heading **delete** the last sentence that reads: Refer to supplemental labeling under "Agricultural Use Requirements" in this section for information about this standard."
   c. Just above the Agricultural Use Box, add the following: "Do not apply when wind speed favors drift beyond the area intended for treatment."
   d. In the Agricultural Use Requirements box, the last sentence that begins "PPE for Entry During the Entry-Restricted Period…" replace the words "*Hazards to Humans and Domestic Animals*" with "*Personal Protective Equipment (PPE)*".
   e. In the Terms section insert a new term for Fumigant Safe Handling Information before the "Application Block" term. The new section should read:

      <u>Fumigant Safe Handling Information:</u> Information that must be provided annually to handlers that must include the following: (1) what fumigants are and how they work, (2) safe application and handling of soil fumigants, (3) air monitoring and respiratory protection requirements for handlers, (4) early signs and symptoms of exposure, (5) appropriate steps to take to mitigate exposures, (6) what to do in case of an emergency, and (7) how to report incidents.
   f. In the Terms section in the "application block" definition change "roads" to "roadways"
   g. In the Terms section in the "application is complete" definition, add the following sentence at the end: "For applications with water seals, the application is complete at the time at which the fumigant has stopped being delivered/dispensed into the soil."

h. In the Terms section in the "entry restricted period" definition add the following after the last sentence: "See the *Entry Restricted Period and Notification* section for additional information."
i. Add the following to the list of terms:

(add below "Representative Handling Task" term)
High Release Height Center Pivot or Lateral Move Irrigation Applications: (1) Release height OR spray height greater than 8 feet, and (2) there is greater than 30 lbs. PSI at the sprinkler head.

Medium Release Height Center Pivot or Lateral Move Irrigation Applications: (1) Release height AND spray height is less than 8 feet, AND (2) 29 lbs. or less PSI at the sprinkler head, AND (3) there are no end guns.

Low Release Height-Solid Stream Center Pivot or Lateral Move Irrigation Applications: (1) Release height and spray height is less than 4 feet, AND (2) 29 lbs. or less PSI at the sprinkler head, AND (3) application system produces a solid stream, and (4) there are no end guns.

(add at the bottom of terms list)
Weed Sprayer: In this labeling, weed sprayer refers to a tank that holds 100-500 gallons combined with an off-set spray boom that creates a swath about 4 feet on each side of an orchard tree row, leaving the untreated grassy middle to grow.

4. Page 4
   a. At the top of the page, in the Certified Applicator Training section, change the website to the following, "www.epa.gov/fumiganttraining".
   b. Delete "PROTECTION FOR." The section should be called "HANDLERS."
   c. In the first paragraph in the handlers section, change "**the** certified applicator must…" to "**a** certified applicator must…"
   d. In the second paragraph that begins "For water-run applications…" delete "nozzle" from the phrase (e.g., sprinkler/chemigation, wheel line).
   e. In the same paragraph, second sentence, change "**The** certified applicator may leave…" to "**A** certified applicator may leave…"
   f. In the same paragraph last sentence that begins "Worker Protection Standard-trained handlers…." Change "with **the** certified applicator at all times during…" to "with **a** certified applicator at all times during…"
   g. In the Protection of Handlers section in the Fumigant Safe Handling paragraph, in all instances change "Fumigant Safe Handling information" to "**Fumigant Safe Handling Information**."
   h. Delete the following sentence at the top of the second column on the page: "For all handling tasks at least one handler trained under the provisions of the WPS 40 CFR 170.230 must be present."
   i. Add the heading "Exclusion of Non-Handlers from the Application Block and Buffer Zone" above this section: "The certified applicator supervising…Requirements section)."

j. In the Exclusion of Non Handlers from the Application Block and Buffer Zone section, below the exclusions, add the following: "Local, state, or federal officials performing inspection, sampling, or other similar official duties are not excluded from the application block or the buffer zone by this labeling. The certified applicator supervising the application and the owner of the establishment where the application is taking place are not authorized to, or responsible for, excluding those officials from the application block or the buffer zone."
k. Add the heading "Providing, Cleaning, and Maintaining PPE" above this section: "The employer of…Agricultural Pesticides."
l. Add the heading "Air-purifying Respirator Availability" before the paragraph that begins "At least one handler…."
m. Under the new "Air-purifying Respirator Availability" heading, revise the section to read: "The employer of any 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. At least one handler must have the appropriate air-purifying respirator and cartridges available (see *Respirator Fit Testing, Medical Qualification, and Training* section for additional requirements).

    Exception: Air-purifying respirators do not need to be made available for handlers performing fumigant site monitoring tasks outside of the buffer zone"
n. Under Respirator Fit Testing, Medical Qualifications, and Training, the last sentence, beginning with "Upon request", should not be a bullet. Left justify it.
o. Under "Respiratory Protection and Stop Work Triggers," make the following revisions
    i. In the first paragraph, insert the following underlined phrase in the sentence so it reads: "The following procedures must be followed to determine whether an air-purifying respirator is required or if operations must cease for any person performing a handling task <u>(except for fumigant site monitoring outside of the buffer zone)</u> as stated in this label.
    ii. In the second sub-bullet, change "or" to "and" to make the sentence read, "Operations must cease and handlers not wearing an air purifying respirator must leave the application block and surrounding buffer zone."

5. Page 5
    a. In the "Respiratory Protection and Stop Work Triggers," section make the following revisions
        i. In the first bullet on page 5, the last sentence should read: "Samples must be taken <u>at the location</u> where the irritation <u>was</u> first experienced."
        ii. In the third bullet on page 5, revise the sentence to read "…within a ten inch radius of <u>the</u> handler's nose and mouth."
        iii. In the sixth bullet on page 5, revise the last sentence to read: "Samples must be taken at the location where the irritation was first experienced or where sample(s) were greater than or equal to 6,000 ppb (6 ppm)."
        iv. In the last bullet and last sub-bullet in the Respiratory Protection and Stop Work Triggers section, make the following revision: "Samples must be

taken at the location where the irritation was first experienced or where sample(s) were greater than or equal to 6,000 ppb (6 ppm)."

b. In the Tarp Perforation and/or Removal section:
   i. In the first paragraph, please italicize "*Handlers*" in the note (see *Handlers* section)
   ii. At the end of the first bullet, replace "sections" with "requirements".
c. In the Entry Restricted Period section:
   i. Delete the "-" in between "Entry" and "Restricted".
   ii. revise the second bullet to read, "5 days (120 hours) after the application is complete if tarps are not perforated and removed for at least 14 days after the application is complete, or"
   iii. In the fourth bullet, add "the" before "application is complete."
   iv. The first bullet under "NOTES" should have the title "*Tarp Perforation and/or Removal*" italicized.
d. In the NOTIFICATION REQUIREMENT Section:
   i. delete the word "REQUIREMENT." The section should be called "NOTIFICATION."
   ii. In the third bullet delete the "Note to registrant".
   iii. In the fifth bullet, revise it to read: "The date and time <u>the</u> entry restricted period is <u>over</u>."

6. Page 6
   a. Under the Shank Application, Weather Conditions section, second bullet, revise to state: "Do not apply if an air-stagnation advisory issued by the National Weather Service <u>is</u> in effect for the ....."
   b. Delete the following text in the last bullet of the Soil Conditions, Injections Depths, and Soil Sealing section: "(Bedded applications only. Tarps are prohibited for shank broadcast applications of Sectagon 42)."
   c. Under ALL *Soil Moisture* sections (pages 6-15, make the following revisions for all GAPs:
      i. replace "at" with "between" before "60% to 80%."
      ii. Replace "field capacity" with "available water capacity"

7. Page 7
   a. Delete the 6 bullets before the "Spray Blade Applications" section since they are duplicates from the bullets above.
   b. In the Spray Blade Applications section, the section titled "Wind Speed" is not required by the label table for this section. This can be removed.

8. Page 8
   a. Under "Application and Equipment Considerations" in the first column, first bullet add a period to the end of the sentence.

9. Page 9
   a. Under the "Center Pivot Applications" section:

i. the first and second bullets under "Wind Speed" should be revised to state: "For lateral move or center pivot applications…"

b. Under "Weather Conditions" the second bullet should be revised to state: "Do not apply if an air-stagnation advisory issued by the National Weather Service is in effect..."

c. Under "Soil Conditions" section, the second bullet that begins "Plant residue that…" the third sentence should be revised to state: "Except when applying over cover crops as set forth in the Product Instructions, crop residue…"

10. Page 10
    a. In the "Solid Set Sprinkler Applications" section, under "Soil Conditions" section, the second bullet that begins "Plant residue that…" the third sentence should be revised to state: "Except when applying over cover crops as set forth in the Product Instructions, crop residue…"
11. Page 11
    a. Under "Drench Applications", in the "Soil Conditions" section, the first sentence should be revised to remove the extra period after "large clods".

12. Page 12
    a. Under "Soil Moisture" the fifth bullet, revise the text to include zeros in the watering instructions to read: "Applications must be followed immediately with 0.20 to 0.50 inches of water through solid set sprinklers."

13. Page 13
    a. Under "Soil Moisture", the last bullet, add "below the surface" after "the top six inches". The first sentence should read as follows: "If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted."

14. Page 14
    a. Under "Soil Moisture", the last bullet, add "below the surface" after "the top six inches". The first sentence should read as follows: "If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted."

15. Page 15
    a. In the Maximum Application Rate box, add the maximum product rate of in addition to the maximum metam rate. Revise to read: "Maximum application rate is 320 lbs metam sodium/A and 76 gallons Sectagon-42 /A."
    b. Add the heading "Use Sites" after the Maximum Application Rate section.
    c. Move the Use Sites section to the beginning of the label, in between the Terms and the Use Method Restrictions.

16. Page 16
    a. Delete the "Note to registrant" at the top of the page.

b. Since this product is applied by the gallon, delete the reference to pounds throughout this section including:
   i. In the first bullet under "To calculate the broadcast equivalent rate…."
   ii. At the beginning of the second paragraph beginning "Pounds [or gallons] of product per treated acre…"
   iii. In the formula for the broadcast equivalent rate
c. In Figure 1 and 2, replace the comma after the numbers with periods.

17. Page 17
   a. Again, replace references to pounds with gallons in the example "200 gallons of product" in the forth bullet, and in four places in the equation.
   b. Delete the quotation marks after 97.5 gallons product/acre

18. Page 18
   a. Under "General Buffer Zone Requirements" insert the following bullet before the last bullet ("The buffer zone period begins…"): "Local, state, or federal officials performing inspection, sampling, or other similar official duties are not excluded from the application block or the buffer zone by this labeling. The certified applicator supervising the application and the owner of the establishment where the application is taking place are not authorized to, or responsible for, excluding those officials from the application block or the buffer zone."
   b. In the Buffer Zone Proximity section:
      i. in the second and fourth bullets, make the following revision: "…buffer zones from multiple metam sodium ~~and~~ or metam potassium…"
      ii. revise number 1 to read, "A minimum of 12 hours have elapsed from the time the earlier application(s) is complete until the start of the later application, and"
      iii. revise number 2 to read, "*Fumigant Site Monitoring* or *Response Information for Neighbors* have been implemented if there are any residences or businesses within 300 feet of any of the buffer zones."
      iv. In the first sub-bullet under the fourth bullet delete "A…UNLESS". The sub-bullet should begin with the word "Both".
   c. In the Buffer Zone Distances section:
      i. Delete the underlined subheading "<u>Buffer zone distances</u>".
      ii. Make sure the table numbering is correct.
      iii. add the following after the last sentence in the last bullet: "Applications are prohibited for rates or block sizes that exceed what is presented in the buffer zone tables."
      iv. Delete the "note to registrant: all buffer zone tables must be expressed…"

19. Pages 19 – 26 (Buffer Zone Tables)
   a. All buffer zone tables should be expressed in gallons of product per acre, not active ingredient per acre.
   b. On page 19, delete the words *"Metam Sodium"* under the heading "BUFFER ZONE TABLES"

c. Under Table 5, replace the text with the following: "**This buffer zone distance table is for center pivot and lateral move irrigation equipment in which the: 1) release height AND spray height is less than 8 feet, AND 2) 29lbs. or less PSI at the sprinkler head, AND 3) there are no end guns."
d. Under Table 6, replace the text with the following: "***This buffer zone distance table is for center pivot and lateral move irrigation equipment in which the: 1) release height AND spray height is less than 4 feet, AND 2) 29 lbs, or less PSI at the sprinkler head, AND 3) application system produces a solid stream (e.g. drizzle boom/Smart Drop®), AND 4) there are no end guns."
e. Some of the Buffer Zone Table titles have changed:
    i. Table 1. Shank Injection Application – Broadcast ~~Untarped~~ Buffer Zone Distances in Feet
    ii. Table 3. Shank Injection Application – Bedded ~~Tarped and Untarped~~ Buffer Zone Distances in Feet
    iii. Table 4. Center Pivot and Lateral Move ~~Irrigation~~ Application (High Release Height*) Buffer Zone Distances in Feet
    iv. Table 5. Center Pivot and Lateral Move ~~Irrigation~~ Application (Medium Release Height**) Buffer Zone Distances in Feet
    v. Table 6. Center Pivot and Lateral Move ~~Irrigation~~ Application (Low Release Height-Solid Stream***) Buffer Zone Distances in Feet
    vi. Table 7. Solid Set Sprinkler ~~Irrigation~~ Application Buffer Zone Distances in Feet
    vii. Table 9. Drip ~~Irrigation~~ ~~Tarped and Untarped~~ Application Buffer Zone Distances in Feet
    viii. Table 10. Flood Basin, Furrow, and Border Application Buffer Zone Distances in Feet
f. Add the buffer zone table for Weed Sprayer.
g. These changes have been made in the attached Excel buffer zone file. Please copy those buffer zone tables into your next submission.

20. Page 27
    a. In the Buffer Zone Credits section:
        i. Add a comma after "Also" in the third sentence.
        ii. Replace the first three tarp credit bullets with, "See www.tarpcredits.epa.gov for a list of tarps that have been tested and determined to qualify for buffer reduction credits. Only tarps listed on this website qualify for buffer reduction credits."
    b. In the Posting Fumigant Buffer Zones section:
        i. change the second bullet to read, "Buffer Zone signs must be placed along or outside the perimeter of the buffer zone, at all usual points of entry and along likely routes of approach from areas where people not under the owner's control may approach the buffer zone."
        ii. Delete the word "Space for" in the bullet for buffer zone signs so it reads: "Contact information for the certified applicator in charge of the fumigation."

iii. In the Exception, the last sentence should be revised to state: "The signs must remain posted until the last buffer zone period expires and signs must be removed within 3-days after the buffer zone period for the last block has expired."

c. In the Restrictions for Difficult to Evacuate Sites section delete the first bullet but keep the sentence that follows it. That is, the first sentence must remain in the section, but should not be part of the bulleted list.
d. The title for "Emergency Preparedness and Response" should be revised to state: "Emergency Preparedness and Response Measures."
e. In the Emergency Preparedness and Response Measures section revise the first sentence to read, "If the buffer zone is 25 feet, then the *Emergency Preparedness and Response Measures* are not applicable."
f. In the Triggers for Emergency Preparedness and Response Measures revise the first bullet to read, "the buffer zone is greater than **25 feet** but less than or equal to **100 feet**, and there are residences or businesses within **50 feet** from the outer edge of the buffer zone, or"

21. Page 28
    a. In the "Response Information for Neighbors" section:
        i. delete the following text: "(or handler(s) under his/her supervision)"
        ii. replace, "After 4-weeks, the information must be delivered again" with, "If the application does not occur when specified, the information must be delivered again."
        iii. revise the first bullet to read, "The location of the application block."

22. Page 29
    a. In the FMP section:
        i. Revise the bullet that reads, "Emergency Preparedness and Response (if applicable)" to read, "Emergency Preparedness and Response Measures (if applicable)".
        ii. change the website address that reads "http://www.epa.gov/pesticides/reregistration/soil_fumigants/index.htm" to read, "www.epa.gov/fumiganttraining."
        iii. Just before the Air Monitoring Plan bullet, revise the bullet, "Unless where exempted in the *Protection of Handlers* section, verify that," to read, "Unless exempted in the *Protection of Handlers* section, verify that"
        iv. delete, "Fumigant site monitoring: Monitoring equipment to be used"
        v. make the following revision: "~~Drip~~ Water-run application monitoring ~~(Note to registrant: Do not add this section if label does not allow drip applications)"~~. Additionally, this section (water-run application monitoring and all sub-bullets) should be moved to the Post Application Summary, before the "Fumigant Treated Area and Buffer Zone Signs" bullet.

23. Page 30

a. Under "Soil Temperature During Treatment" change the range to 40-90 deg F since that is what appeared on the most recent stamped approved label (comment #16 of the 5/13/2010).

24. Page 31
    a. Under "Aeration before planting" add a period at the end of the first sentence.
    b. Bold "Testing for Dissipation of Sectagon 42 just above the "Uses, Application Methods and Rates Field Application Where Entire Area is Being Treated" section.
    c. Under "When to Treat" change "80% field capacity" to "80% available water capacity."

25. Page 32
    a. Under Application to Bed or Rows, under "When to treat" change "80% field capacity" to "80% available water capacity."
    b. Under Drip Irrigation:
        i. delete the first sentence in the second paragraph that reads: "Application must be continuously supervised."
    c. In the same paragraph change "80% field capacity" to "80% available water capacity."

26. Page 33
    a. Under POTATOES, Sprinkler system preplant application, change "80% field capacity" to "80% available water capacity."
    b. Under FOR SUPPRESSION OF SPECIFIC ORCHARD DISEASES (SUCH AS SPECIFIC APPLE REPLANT DISEASES) change "80% field capacity" to "80% available water capacity."
    c. Under "Individual tree row site:" after the term "weed sprayer" add the following text: "(see *Terms used in this labeling* section)".
    d. Delete the tarping requirement.

<u>Attachment 1 – Levels of required sections for Table of Contents</u>

PRECAUTIONARY STATEMENTS
- Hazards to Humans and Domestic Animals
- Personal Protective Equipment (PPE)
- Personal Protective Equipment (PPE) for Respiratory Protection
- User Safety Requirements
- User Safety Recommendations
- Environmental Hazards

DIRECTIONS FOR USE

- Agricultural Use Requirements
- Terms Used In This Labeling
- Use Sites
- Use Method Restrictions
- Certified Applicator Training
- Handlers
- Protection for Handlers
  - Supervision of Handlers
  - Exclusion of Non Handlers form the Application Block and Buffer Zone
  - Providing, Cleaning, and Maintaining PPE
  - Air-Purifying Respirator Availability
  - Respirator Fit Testing, Medical Qualification, and Training
  - Respiratory Protection and Stop Work Triggers
- Tarp Perforation and/or Removal
- Entry Restricted Period and Notification
  - Entry Restricted Period
  - Notification
- Mandatory Good Agricultural Practices (GAPs)
- Maximum Application Rate for Pre-Plant Soil Uses
- Calculating the Broadcast Equivalent Application Rate
- Buffer Zone Requirements
  - Buffer Zone Proximity
  - Structures under the control of the owner of the application block
  - Areas not under the control of the owner of the application block
- Buffer Zone Distances
  - Buffer Zone Tables
- Buffer Zone Credits
- Posting Fumigant Buffer Zones
- Restrictions for Difficult to Evacuate Sites
- Emergency Preparedness and Response Measures
  - Triggers for Emergency Preparedness and Response Measures
  - Fumigant Site Monitoring
  - Response Information for Neighbors
- Notice to State and Tribal Lead Agencies
- Emergency Response Plan
- Site Specific Fumigation Management Plan (FMP)
  - Record-Keeping Procedures
- Post-Application Summary
  - Record-Keeping Procedures
- General Instructions

Cathryn

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.

Novasource® Tessenderlo Group

Sectagon – 42®

Agricultural Fumigant

FUMIGANT SOLUTION FOR SPECIFIC CROPS AS LISTED IN THIS LABEL
For suppression of: Nematodes, Fungi, Bacteria, Weeds, Weed seeds and Volunteer seeds.

42.2% SODIUM METHYLDITHIOCARBAMATE

ACTIVE INGREDIENT:
Sodium methyldithiocarbamate (anhydrous)] 42.2%
OTHER INGREDIENTS: 57.8%
TOTAL: 100.0%
Contains 4.22 lbs. active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

DANGER PELIGRO

Read Entire Label. Use strictly in accordance w/ label warnings & directions.

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

FIRST AID	
If 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 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 treatment advice.
If swallowed:	Call 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 or doctor. Do not give anything by mouth to an unconscious person.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-866-374-1975 for emergency medical treatment information.	
NOTE TO PHYSICIAN	
Probable mucousal damage may contraindicate the use of gastric lavage.	

EPA Reg. No. 61842-6 **EPA Est. No. 61842-ID-001** **EPA Est. No. 61842-WA-002**

Manufactured by:
Tessenderlo Kerley, Inc.
2255 N. 44th Street, Suite 300
Phoenix, AZ 85008 USA
1-800-525-2803

Net Contents:

TESSENDERLO GROUP ™

NSFSPUS0710

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER

- Corrosive: causes skin damage. May be fatal if absorbed through the skin. Do not get on skin or clothing.
- Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals.
- Harmful if swallowed.
- Harmful if inhaled. Irritating to eyes, nose, and throat. Avoid breathing vapor or spray mist.
- Irritating to eyes. Do not get in eyes.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are barrier laminate or viton > 14 mils. For more options, follow the instructions for category H on the chemical-resistance category selection chart.

Handlers applying via weed sprayer, while irrigation system is operating or handlers who may be exposed to liquid spray while repairing a malfunctioning chemigation system or shutting off equipment must wear:

- chemical-resistant coveralls over long-sleeve shirt and long pants,
- chemical-resistant gloves,
- chemical-resistant footwear plus socks,
- chemical-resistant headgear, and
- respirator of the type specified in the respiratory protection section in the PPE requirements on this label.

Handlers wearing chemical-resistant attire are limited to 30 minutes of exposure in any 60 minute period to prevent heat illness, and, as required by the Worker Protection Standard for Agricultural Pesticides, employers of these handlers must take any necessary steps to avoid heat illness.

Except as required above, handlers transferring or loading liquid formulations, handlers operating motorized ground equipment with open cabs, handlers repairing or inactivating irrigation or chemigation equipment during application, and handlers cleaning up spills or equipment, must wear:

- coveralls over long-sleeve shirt and long pants,
- chemical resistant gloves,
- chemical resistant footwear plus socks,
- chemical-resistant apron if transferring or loading the fumigant or cleaning up spills or equipment,
- protective eyewear, and
- respirator of the type specified in the PPE requirements for respiratory protection section in the PPE requirements on this label if triggered.

All other handlers including handlers operating motorized ground equipment with closed cabs (except for handlers who set up and calibrate chemigation and irrigation equipment and start the application from inside the application block) as stated in this labeling must wear:

- long-sleeve shirt and long pants,
- shoes plus socks, and
- respirator of the type specified in the respiratory protection section in the PPE requirements on this label if triggered.

All handlers who set-up and calibrate chemigation and irrigation equipment and start the application from inside the application block must wear:

- long-sleeve shirt and long pants,
- shoes plus socks,
- protective eyewear, and
- respirator of the type specified in the respiratory protection section in the PPE requirements on this label if triggered.

PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR RESPIRATORY PROTECTION

When an air-purifying respirator is required under this label's Directions for Use, Protection for Handlers, Respiratory Protection and/or Stop Work Triggers section, handlers must wear at minimum either:

- A NIOSH-certified full-facepiece air-purifying respirator equipped with an organic vapor (OV, NIOSH approval prefix TC-23C) cartridge and a particulate prefilter (Type N, R, P, or HE NIOSH approval number prefix TC-84A) or
- a gas mask with a canister approved for organic vapor (NIOSH approval number prefix TC-14G).

Cartridges or canisters must be replaced when odor or sensory irritation from this product becomes apparent during use, if the measured concentration of MITC is greater than 6000 ppb (6 ppm), or after 8 hours of cumulative use, whichever occurs first.

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.

DO NOT transport contaminated clothing inside a closed vehicle unless stored in a sealed container. Wash or dispose as specified.

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 mammals, birds, aquatic invertebrates and fish. 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 wash waters or rinsate.

Metam-sodium has certain properties and characteristics in common with chemicals that have been detected in groundwater (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.

USE PRECAUTIONS

Keep off desirable lawns and plants. Do not apply within 3 feet of the drip line of desirable plants, shrubs or trees. Do not use in confined areas without adequate ventilation OR where fumes may enter nearby dwellings. Do not use in greenhouses. Keep container tightly closed when not in use. Do not store near feed or food.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in a cool, dry place, keep container closed when not in use. Do not store below 0° F. Product crystallizes at lower temperatures. Warm or store at higher temperatures and mix to redissolve crystals and assure uniformity before use.

Do not stack more than three drums high. Leaking or damaged drums should be placed in overpack drums for disposal. Spills should be absorbed in sawdust or sand and disposed of in a sanitary landfill. Keep container closed when not in use.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instruction, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: [NON-REFILLABLE CONTAINERS] Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into

application equipment or a mix tank or store rinsate for later use or disposal. Then offer for recycling if available 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.

[REFILLABLE CONTAINERS]
Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available 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.

NOTE OF WARNING: CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER!

DIRECTIONS FOR USE

For suppression of: Nematodes, Fungi, Bacteria, Weeds, Weed seeds and Volunteer seeds.

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 handlers may be in the application block from the start of the application until the entry restricted period ends, and in the buffer zone during the buffer zone period. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation. ~~Refer to supplemental labeling under "Agricultural Use Requirements" in this section for information about this standard.~~

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 agriculture workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. For 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).

PPE For Entry During the Entry-Restricted Period: PPE for entry that is permitted by this labeling is listed in the ~~*Hazards to Humans and Domestic Animals*~~ section of this labeling. Personal Protective Equipment (PPE)

TERMS USED IN THIS LABELING

Soil Fumigant Training Program: Certified applicator training that provides information on (1) how to correctly apply the fumigant, including how to comply with new label requirements; (2) how to protect handlers and bystanders; (3) how to determine buffer zone distances; (4) how to complete an FMP and the post-application summary; (5) how to determine when weather and other site-specific factors are not favorable for fumigant application; (6) how to comply with required GAPs and how to document compliance with GAPs in the FMP; and (7) how to develop and implement emergency response plans.

insert Fumigant Safe Handling Info

Application Block: Area within the perimeter of the fumigated portion of a field (including furrows, irrigation ditches, ~~roads~~ roadways). The perimeter of the application block is the border that connects the outermost edges of total area treated with the fumigant product.

Application Rate: The ratio of fumigant mass applied compared to the soil surface area (e.g., lbs of product per acre). The application rate is expressed on this labeling in terms of either the "treated area application rate" or the "broadcast equivalent application rate." The "treated area application rate" relates to only the rate of fumigant applied to the portion of the field that is fumigated (e.g., rate within the bed or strips). The "broadcast equivalent application rate" relates to the rate of fumigant applied within the entire perimeter of the application block. For bedded and strip applications, the "broadcast equivalent application rate" must be calculated to determine the buffer zone distance required by this labeling.

Start of the Application: The time at which the fumigant is first delivered/dispensed into the soil in the application block.

Application is Complete: The time at which the fumigant has stopped being delivered/dispensed into the soil and the soil has been sealed; drip lines have been purged (if applicable). [Insert Watershed exception]

Entry Restricted Period: This period begins at the start of the application and expires depending on the application method and if tarps are used when the tarps are perforated and removed. Entry into the application block during this period is only allowed for appropriately PPE-equipped handlers performing handling tasks. See the Entry Restricted Period and Notification Section for additional information.

Buffer Zone: An area established around the perimeter of each application block. The buffer zone must extend outward from the edge of the application block perimeter equally in all directions.

Buffer Zone Period: Begins at the start of the application and lasts for a minimum of 48-hours after the application is complete. Non-handlers must be excluded from the buffer zone during the buffer zone period.

Difficult to Evacuate Sites: Pre-K to Grade 12 schools, state licensed daycare centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons.

Owner: Any person who has a present possessory interest (fee, leasehold, rental, or other) in an agricultural establishment. A person who has both leased such agricultural establishment to another person and granted that same person the right and full authority to manage and govern the use of such agricultural establishment is not an owner. See definition of "owner" in WPS (40 CFR §170.3).

Roadway: Portion of a street or highway improved, designed or ordinarily used for vehicular travel, exclusive of the sidewalk or shoulder even if such sidewalk or shoulder is used by persons riding bicycles. In the event a highway includes two or more separated roadways, the term *roadway* shall refer to any such roadway separately.

Representative Handling Task: For air monitoring, the locations and handler activities sampled must represent each handler's exposure occurring within the application block. For example, for an application consisting of a seven-handler crew (1 tractor driver, 1 tractor co-pilot, 4 shovelers, and 1 certified applicator supervising) two breathing zone samples could be collected: one sample for the tractor co-pilot and one sample for a downwind shoveler. Results of previous sampling may indicate which tasks and locations are worst case and therefore representative of all handlers.

insert high- medium- and low-release definitions

Solid Stream: An uninterrupted liquid stream that remains generally as a coarse flow until contacting the intended target. An example of a solid stream application is Smart Drop®, also known as drizzle boom. Any application system that employs sprayheads or nozzles with moving parts that produce a rotating or oscillating spray pattern (e.g., rotators, spinner, nutators, and wobblers) or that otherwise break up the stream into droplets does not qualify as a solid stream nozzle.

insert Weed sprayer

USE METHOD RESTRICTIONS

The use of this product is restricted to the methods described in this label.

Use in greenhouses or any other enclosed structure or confined area is prohibited. Application with handheld equipment is prohibited. Application with cement grinder and shredder equipment is prohibited. Open-pour applications are prohibited. Do not apply this product through traveler or big gun application systems.

CERTIFIED APPLICATOR TRAINING

Any certified applicator supervising a soil fumigant application must have successfully completed one of the soil fumigant training programs listed on the following EPA website

http://www.epa.gov/~~pesticides/reregistration/soil-fumigants/index.htm~~ for the active ingredient(s) in this product. The training must be completed in the time frames listed on the website. The FMP must document the date and location where the soil fumigant training program was completed.

The following activities are prohibited from being performed by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in WPS (40 CFR Part 170):

- Monitoring fumigant air concentrations;
- 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; and
- Performing any handling tasks as defined by the WPS (40 CFR 170).

The following activities are prohibited from being performed in the application block from the start of the application until the entry-restricted period ends and in the buffer zone during the buffer zone period by anyone other than persons who have been appropriately trained and equipped as handlers in accordance with the requirements in the WPS (40 CFR Part 170), (NOTE: persons repairing, and monitoring tarps are considered handlers for the duration listed below). Prohibited activities (except for trained and equipped handlers) include:

- Participating in the application as supervisors, loaders, drivers, tractor co-pilots, shovelers, cross ditchers, or as other direct application participants;
- Installing, repairing, operating or removing irrigation equipment;
- Performing scouting, crop advising, or monitoring tasks;
- Installing, perforating (cutting, punching, slicing, poking), or removing tarps; and
  - Repairing or monitoring tarps until 14 days after application is complete if tarps are not perforated and removed during those 14 days. **NOTE:** see *Tarp Perforation and/or Removal* section on this labeling for requirements about when tarps are allowed to be perforated.

Handlers do not include local, state, or federal officials performing inspection, sampling, or other similar official duties.

~~PROTECTION FOR~~ HANDLERS

For all applications except water run: from the start of the application until the application is complete, ~~the~~ a certified applicator must be at the application block in the line of sight of the application and must directly supervise all persons performing handling activities.

For water-run applications (e.g., sprinkler/chemigation/~~nozzle~~, wheel line, center pivot, lateral move, drip, flood, etc.), a certified applicator must be in the line of sight of the application at the start of the application including set-up, calibration, and initiation of the application. ~~The~~ A certified applicator may leave but must return at least every two hours to visually inspect the equipment to ensure proper functioning and must directly supervise all Worker Protection Standard trained handlers until the application is complete. Worker Protection Standard-trained handlers may perform the monitoring functions in place of a certified applicator but they must be under the supervision of a certified applicator and be able to communicate with ~~the~~ a certified applicator at all times during monitoring activities via cell phone or other means.

For handling activities that take place after the application is complete until the entry restricted period expires, the certified applicator is not required to be on-site, but must have communicated in a manner that can be understood by the site owner 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).

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

The certified applicator must provide Fumigant Safe Handling information to each handler or confirm that within the past 12 months, each handler has received Fumigant Safe Handling information in a manner he/she can understand. Fumigant Safe Handling information will be provided where this product is purchased or at www.epa.gov/fumiganttraining.

~~For all handling tasks at least one handler trained under the provisions of the WPS 40 CFR 170.230 must be present.~~

The certified applicator supervising the application and the owner of the establishment where the application 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 as stated in this labeling are:

- excluded from application block during the entry restricted period, and
- excluded from the buffer zone during the buffer zone period (see buffer zone exemption for transit on roadways in Buffer Zone Requirements section).

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.

At least one handler must have the appropriate air-purifying respirator and cartridges/~~canisters~~ available, ~~and they must be fit-tested, trained, and medically examined.~~

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

Exception: ~~After the application is complete~~, air-purifying respirators do not need to be made available for handlers ~~when~~ fumigant site monitoring ~~is being conducted~~ outside of the buffer zone ~~(to determine if this type of monitoring is triggered, see the *Emergency Preparedness and Response/Fumigant Site Monitoring* section)~~.

RESPIRATOR FIT TESTING, MEDICAL QUALIFICATION, AND TRAINING

Using a program that conforms to OSHA's requirements (see 29 CFR Part 1910.134), employers must verify that any handler that uses a respirator is:

- Fit-tested and fit-checked,
- Trained, and
- 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 these requirements.

RESPIRATORY PROTECTION AND STOP WORK TRIGGERS

The following procedures must be followed to determine whether an air-purifying respirator is required or if operations must cease for any person performing a handling task as stated in this label.

- 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 surrounding buffer zone, or
  - Operations must cease and handlers not wearing an air-purifying respirator must leave the application block ~~or~~ and surrounding buffer zone.
- Handlers can remove air-purifying 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 (0.6 ppm), provided that handlers do not experience sensory irritation.

- 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.
- When using monitoring devices to monitor air concentration levels, a direct read detection device, such as an electronic device or a colorimetric device (e.g. Draeger, Sensidyne) must be used. The devices must have sensitivity of at least 600 ppb (0.6 ppm) for MITC. Persons using direct read detection devices must follow the manufacturer's directions.
- When breathing zone samples are required, they must be taken outside respiratory protection equipment and within a ten inch radius of handler's nose and mouth.
- When air-purifying respirators are worn, 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 an air-purifying respirator, or (2) a MITC air sample is greater than or equal to 6,000 ppb (6 ppm), then all handler activities must cease and handlers must be removed from the application block and surrounding buffer zone.
- Handlers can resume work activities without air-purifying respirators 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 (0.6 ppm), provided that handlers do not experience sensory irritation. During the collection of air samples an air-purifying respirator must be worn by the handler taking the air samples. Samples must be taken at the location where the irritation is first experienced.
- Handlers can resume work activities if all 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 6,000 ppb (6 ppm),
  - Handlers do not experience sensory irritation while wearing the air-purifying respirator, and
  - Filter cartridges/canisters 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 at the location where the irritation is first experienced.

TARP PERFORATION AND/OR REMOVAL

IMPORTANT: Persons perforating, repairing, removing, and/or monitoring tarps are defined, within certain time limitations, as handlers (see Handlers section), and they 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 application is complete, 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 during Flood Prevention Activities for Bedded Applications Only sections*).
- If tarps are perforated within 14 days after the application is complete, tarp removal must not begin until at least 2 hours after tarp perforation is complete.
- If tarps are perforated but not removed within 14 days after the application is complete, planting or transplanting must not begin until at least 48 hours after the tarp perforation is complete.
- If tarps are not perforated or removed within 14 days after the application 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 may be perforated manually ONLY for the following situations:
  - At the beginning of each row when a coulter 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.
- Early Tarp Perforation during Flood Prevention Activities for Bedded Applications Only:
  - Tarp perforation is allowed before the 5 days (120 hours) have elapsed.
  - Tarps must be immediately retucked and packed after soil removal.

ENTRY-RESTRICTED PERIOD

Entry into the application block (including early entry that would otherwise be permitted under the Worker Protection Standard) 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 after the application is complete. ~~Note: persons 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,~~ or
- 48 hours after tarps perforation is complete if tarps will be perforated within 14 days after the application is complete and will not be removed for at least 14 days after the application is complete, or
- Tarp removal is completed if tarps are both perforated and removed less than 14 days after application is complete.

NOTES:

- See Tarp Perforation and/or Removal section on this labeling for requirements about when tarps are allowed to be perforated.
- If early tarp removal occurs for a broadcast application the entry restricted period is a minimum of 5 days after the application is complete.
- When listing application information for soil fumigant applications to comply with Part 170.122 of the WPS, list the entry restricted period time frame in place of the REI.

NOTIFICATION ~~REQUIREMENT~~

Notify workers of the application by warning them orally and by posting Fumigant Treated Area signs.

The signs must bear the skull and crossbones symbol and state:

- "DANGER/PELIGRO,"
- "Area under fumigation, DO NOT ENTER/NO ENTRE,"
- Metam Sodium fumigation in Use." ~~[Note to registrant: when products have more than one active ingredient, include both ingredients on the sign.]~~
- The date and time of fumigation,
- The date and time entry restricted period is lifted,
- "Sectagon 42", and
- Name, address, and telephone number of the certified applicator in charge of the fumigation.

Post the Fumigant Treated Area sign instead of the Worker Protection Standard sign for this application but follow all Worker Protection Standard requirements pertaining to location, legibility, text size, and sign size (40 CFR § 170.120).

Post the Fumigant Treated Area signs at all entrances to the application block no sooner than 24 hours prior to application.

Fumigant Treated Area signs must remain posted for no less than the duration of the entry restricted period.

Fumigant Treated Area signs must be removed within 3 days after the end of the entry restricted period.

MANDATORY GOOD AGRICULTURAL PRACTICES (GAPs):

The following GAPs must be followed during all fumigant applications.

Shank Applications

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically exist within an hour prior to sunset and continue past sunrise and may 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.

Soil Conditions, Injection Depth, and Soil Sealing

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

The injection point for bedded and broadcast shank injection applications shall be a minimum of 3 inches from the final soil/air interface. Chisel traces must be eliminated following an application and the soil surface must be sealed immediately after application using one or more of the following methods:

- Compaction with a bed-shaper, roller, press wheel, coil packer, ring packer, or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a ¼-inch of water beginning immediately after application begins and completing the water treatment within four hours, OR
- Covering treated area with a tarp ~~(Bedded applications only. Tarps are prohibited for shank broadcast applications of Sectagon 42.~~

Tarps (when tarps are used in Sectagon 42 applications)

- A written tarp plan must be developed and included in the FMP
- Once a tarp is perforated, the application is no longer considered tarped.
- Tarps must be installed immediately after the fumigant is applied to the soil.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be ~~at~~ between 60% to 80% of ~~field~~ available water capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed ~~field~~ available water capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is ~~at~~ between 60% to 80% field capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For **coarse** textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of ~~field capacity~~ available water) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of ~~field~~ available water capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of ~~field capacity~~ available water) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of ~~field capacity~~ available water) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

- Do not apply or allow fumigant spill onto the soil surface. Injectors must be placed below the soil surface before product flow begins. Each injection line must either have a check valve located as close as possible to the final injection point, or drain/purge the line of any remaining fumigant prior to lifting injection shanks from the ground. Do not lift injection shanks from the soil until the shut-off valve has been closed and the fumigant has been depressurized (passively drained) or purged (actively forced out via air compressor) from the system.

- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry disconnect couplings (closed transfer system) must be installed on tanks and transfer hoses.
- Sight gauges and pressure gauges must be properly functioning.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor driver during application to prevent backflow of the fumigant into the pressurizing cylinder.
- All rigs must include a flow meter or a flow monitoring device.
- All rigs must have a constant pressure system with orifice plates to ensure the proper amount of fumigant is applied.
- Valves (e.g., backflow, shut-off), vacuum relief valves, and low pressure drains must be in place, operational, and leak free.
- Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels/shanks to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

- All rigs must include a flow meter or a flow monitoring device.
- All rigs must have a constant pressure system with orifice plates to insure the proper amount of fumigant is applied.
- Valves, vacuum relief valves, and low pressure drains must be in place, operational, and leak free.
- Interlocking controls must be installed and functioning.
- Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

Spray Blade Applications (includes bed-top blade and soil cap applications)

Wind Speed

- 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.

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions, Injection Depth, and Soil Sealing

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Apply the product mixture on the soil immediately ahead of the bed-shaping equipment or tiller. The soil surface must be compacted immediately after application using one or more of the following methods:

- Compaction with a bed-shaper, roller, press wheel, coil packer, ring packer, or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a ¼-inch of water beginning immediately after application begins and completing the water treatment within four hours, OR
- Covering treated area with a tarp.

Tarps (when tarps are used in Sectagon 42 applications)

- A written tarp plan must be developed and included in the FMP
- Once a tarp is perforated, the application is no longer considered tarped.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be ~~at~~ between 60% to 80% of ~~field~~ available water capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed ~~field~~ available water capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is ~~at~~ between 60% to 80% ~~field~~ available water capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of ~~field~~ available water capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

For moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of field capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

For medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of field capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

For fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of field capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For fields **with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.

- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

- Do not apply or allow fumigant to drain or drip onto the soil surface.
- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry disconnect couplings (closed transfer system) must be installed on all tanks and transfer hoses.
- Sight gauges and pressure gauges must be properly functioning.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor pilot during application to prevent backflow of the fumigant into the pressurizing cylinder.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

Rotary Tiller Applications

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions, Injection Depth, and Soil Sealing

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Spray or drip the product mixture on the soil immediately ahead of the bed-shaping equipment or tiller. The soil surface must be compacted immediately after application using one or more of the following methods:

- Compaction with a bed-shaper, roller, press wheel, coil packer, ring packer, or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a ¼-inch of water beginning immediately after application begins and completing the water treatment within four hours, OR
- Covering treated area with a tarp.

Tarps (when tarps are used in Sectagon 42 applications)

- A written tarp plan must be developed and included in the FMP.
- Once a tarp is perforated, the application is no longer considered tarped.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be at 60% to 80% of field capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed field capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% field capacity immediately prior the application, the USDA *Feel and*

Appearance Method test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

For coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of field capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of field capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of field capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of field capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.

- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

- Do not apply or allow fumigant to drain or drip onto the soil surface.
- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry disconnect couplings (closed transfer system) must be installed on all tanks and transfer hoses.
- Sight gauges and pressure gauges must be properly functioning.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor driver during application to prevent backflow of the fumigant into the pressurizing cylinder.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels shanks to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

Center Pivot Applications

Wind Speed

- For sprinkler or center pivot applications: 1) not using a solid stream type nozzle, OR 2) having a release height or spray height greater than 4 feet, OR 3) having 30 lbs or greater PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.
- For sprinkler or center pivot applications using: 1) solid stream, AND 2) having release height and spray height less than 4 feet, AND 3) having 29 lbs. or less PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 25 mph.

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service, in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Except when applying over cover crops as set forth in the General Instructions for Sprinkler System, crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F, measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be at 60% to 80% of field capacity immediately prior to the application, subject to the exception below.

- **EXCEPTION:** In areas where soil moisture must exceed field capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% field capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For **coarse** textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of field capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of field capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of field capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of field capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve soil moisture, tillage should be done as close to the time of application as possible.

Flushing Irrigation Lines

- Do not allow fumigant to remain in the irrigation system after the application is complete. After application of the fumigant, flush the injection and irrigation system with untreated water. The flush time must be adequate to purge the fumigant from the injection and irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Any alternatives to the required safety devices in this label must conform to the list of EPA-approved alternative devices.

Solid Set Sprinkler Applications

Wind Speed

- Wind speed at the application site *must* be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Except when applying over cover crops as set forth in the General Instructions for Sprinkler Systems, crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the

atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F, measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be at 60% to 80% of field capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed field capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% field capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For **coarse** textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of field capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of field capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of field capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of field capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.

- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve soil moisture, tillage should be done as close to the time of application as possible.

Flushing Irrigation Lines

- Do not allow fumigant to remain in the irrigation system after the application is complete. After application of the fumigant, flush the injection and irrigation system with untreated water. The flush time must be adequate to purge the fumigant from the injection and irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Any alternatives to the required safety devices in this label must conform to the list of EPA-approved alternative devices.

Drench Applications

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil

compaction layers (hardpans) 'are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.

- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F, measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be at 60% to 80% of field capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed field capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% field capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For **coarse** textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of field capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of field capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of field capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of field capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.

- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before the application. To conserve soil moisture, tillage should be done as close to the time of application as possible.
- Applications must be followed immediately with 0.20 to 0.50 inches of water through solid set sprinklers.
- A minimum of two or more water seals must be applied; one water seal on the first evening of the application and the second on the second evening of the day after application.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry disconnect couplings (closed transfer system) must be installed on all tanks and transfer hoses.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- Each nozzle must be equipped with a flow monitor, e.g., mechanical electronic, or Red-ball type monitor.
- To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
- Nozzles and metering devices are of correct size and are sealed and unobstructed.
- The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Any alternatives to the required safety devices in this label must conform to the list of EPA-approved alternative devices.

Drip Applications

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F, measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be at 60% to 80% of field capacity immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed field capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% field capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For **coarse** textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of field capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of field capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of field capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of field capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve soil moisture, tillage should be done as close to the time of application as possible.

Tarps (when tarps are used in Sectagon 42 applications)

- A written tarp plan must be developed and included in the FMP
- Application to blocks with previously laid and perforated tarps is allowed, but once a tarp is perforated, the application is no longer considered tarped. Therefore, the application would not be eligible for tarp buffer zone credits.

Flushing Drip Irrigation Lines

- After application of the fumigant, continue to irrigate the area with water to flush the injection and irrigation system with untreated water. Do not allow fumigant to remain in the irrigation system after the application is complete. The total volume of water must be adequate to completely remove the fumigant from the irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal and/or normal irrigation practices.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The drip irrigation system (main lines, headers, drip tape) must be thoroughly checked for leaks before the start of the application. An adequate run-time and pressure are needed to detect leaks. Look for puddling along major pipes (holes on pipes or leaky joints), at the top and ends of rows (leaky connections, open drip tape), in the furrows and on the bed surface (damaged drip tape, malfunctioning emitters).
- To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
- The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

- Nozzles and metering devices are of correct size and are sealed and unobstructed.
- Any alternatives to the required safety devices in this label must conform to the list of EPA-approved alternative devices.

Flood Basin, Furrow and Border Applications

Weather Conditions

- To determine if unfavorable weather conditions exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether an application should proceed, the National Weather Service weather forecast must be checked by the certified applicator supervising the application:
  - on the day of, but prior to the start of the application, and
  - on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Do not apply if an air-stagnation advisory issued by the National Weather Service in effect for the area in which the application is planned, during the application, or the 48 hours after the application is complete.
- Do not apply if light wind conditions (< 2 mph) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.
- Detailed National Weather Service forecasts for local weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov, on NOAA weather radio, or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth, free of large clods, and tilled at a minimum to the depth of the treatment zone. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or during the soil fumigant application.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Tarps (when tarps are used in Sectagon 42 applications)

- A written tarp plan must be developed and included in the FMP
- Once a tarp is perforated, the application is no longer considered tarped.

Soil Temperature

- At the beginning of the application, the soil temperature at the injection depth must be between 35° and 90°F, measured at 3 inches in depth.
- If air temperatures have been above 100°F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP. Record temperature measurements at the application depth or 12 inches, whichever is shallower.

Soil Moisture

- The soil moisture in the top six inches of soil must be at 60% to 80% of field capacity immediately prior to the application, subject to the exception below.
- EXCEPTION: In areas where soil moisture must exceed field capacity to form a bed (e.g., certain regions in Florida), soil moisture content may exceed the 80%.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% field capacity immediately prior the application, the USDA *Feel and Appearance Method* test may be used to estimate whether the 60% to 80% soil moisture content requirement is met:

  For coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% of field capacity) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  For **moderately coarse** textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% of field capacity) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  For **medium** textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% of field capacity) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  For **fine** textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% of field capacity) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservationist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

- Systems using a gravity flow pesticide dispersing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.
- Meter at a steady rate into 3 to 18 inches of water per treated acre during irrigation. IMPORTANT: Prior to starting the application, always inspect ditches and border areas to ensure containment of the irrigation waters. Apply only into field head ditch. DO NOT APPLY INTO ANY LATERAL DITCHES.
- Back-flow prevention devices must be installed and in working order.
- Tanks must be in good condition to ensure product does not spill or leak.
- Dry disconnect couplings (closed transfer system) must be installed on all tanks and transfer hoses.
- Tanks must have sealable covers on access ports.
- Tanks must have proper pesticide labels affixed to them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.

- Flow rates must be calibrated and checked for each application.
- All previous materials applied with the system must be cleaned thoroughly prior to fumigant application.
- System must be flushed after application to totally remove all fumigant.

MAXIMUM APPLICATION RATES FOR PRE-PLANT SOIL USES

Include product conversion

320 lbs metam x 1 gallon / 422 lbs metam = 76 gallons Sectagon 42

• Maximum application rate is 320 lbs metam sodium/A

Only for use on the following:

Cover crops (i.e., crops planted between periods of regular crop production to prevent soil erosion);

Crops grown solely for seed;

As well as (in alphabetical order):

alfalfa; amaranth (including leafy amaranth, Chinese spinach, tampala); anise; apple (including balsam, crabapple); apricot; artichokes; arugula (roquette); asparagus (nursery production only); barley; basil; beans (including: lima, green, fava, seed beans); beet (including garden);

berry (including black satin berry, blackberry, blueberry, boysenberry, chesterberry, lowberry, wild raspberry, youngberry, darrowberry, dewberry, cloudberry, elderberry, Cherokee blackberry, coryberry, European barberry, huckleberry, hullberry, gooseberry, cranberry, highbush cranberry, Himalayaberry, jostaberry, juneberry, Saskatoon berry, lingonberry, loganberry, lavacaberry, lucretiaberry, mammoth blackberry, marionberry, bingleberry, mountain pepper berries, mulberry, olallieberry, dirksen thornless berry, nectarberry, Oregon evergreen berry, partridgeberry, phenomenalberry, rangeberry, raspberry (black and red), ravenberry, riberry, rossberry, schisandra berry, serviceberry, Shawnee blackberry, strawberry)

bok choy; broccoli; brussels sprouts; cabbage (including Napa); calabaza; calamondin; cardoon; carrot; casaba; cauliflower; celeriac; celery (including: Chinese); celtuce; chayote (fruit); che; cherry (including: sweet and tart, chokecherry, pincherry); chervil; cheyenne; Chilean guava; Chinese greens; Chinese okra; Chinese waxgourd (Chinese preserving melon); chinquapin; chironja; chrysanthemum; cilantro; citrus citron; citrus hybrids; collard; corn salad; corn; cotton; cress (including: upland, yellow rocket, winter cress); cucumber (including: Chinese cucumber); cucuzza; currant, (including: black, red, native and other varieties and hybrids);

dandelion; dill; dock (sorrel); eggplant; endive (escarole); fennel, Florence (finochio); forest seedlings; garland; garlic; gherkin; ginger; gourd; grape; grapefruit; hechima; herbs (all); honey balls; honeysuckle; hyotan; kale; kiwifruit (including: fuzzy and hard); kohlrabi; kumquat; leek; lemon; lettuce (including: head and leaf); lime; loquat; mandarin (incluing: tangerine and satsuma); mango; mayhaw; maypop;

melon (including: bitter melon, cantaloupe, hybrids and/or cultivars, citron melon, Crenshaw melon, golden pershaw melon, mango melon, honeydew melon, muskmelon, Persian melon, pineapple melon, Santa Claus melon, snake melon, watermelon);

mint; muntries; mustard; nectarine; nursery stock (fruit seedlings and rose bushes only); nursery tree crops (including crops like maple, ash, dogwood);

nut (including: almond, beech nut, cashew, chestnut, hickory nut, Brazil nut, macadamia nut (bush nut), filbert (hazelnut), pecan, pistachio, walnut (black and English/Persian); onion; orach; orange (including: sour an sweet); ornamentals; parsley; peas (including: English and garden); peach; peanut; pear (including: oriental and balsam); pepper; phalsa; plum (including: Chickasaw and Damson); plumcot; potato; prune (fresh); pummelo; pumpkin; purslane (including: garden and winter); quince;

radicchio (red chicory); radish (including Oriental); rappini; rhubarb; rye; salal; sea buckthorn; soybean; spinach (including: New Zealand, Malabar, Indian); squash, (including: summer, winter, butternut, straightneck, Acorn, crookneck, hubbard, scallop, spaghetti); sugar beet; sweet potato; swiss chard; tangelo; tangor; tobacco; tomatoes; tree nuts (orchard replant only); turf (including golf courses); turnip; vegetable marrow; wheat; yams; zucchini.

Use only according to label. Do not apply this product through any irrigation system unless the labeling on chemigation is followed.

CALCULATING THE BROADCAST EQUIVALENT APPLICATION RATE

NOTE to Registrant: The maximum application rates must be expressed in pounds or gallons of product per treated acre throughout this label.

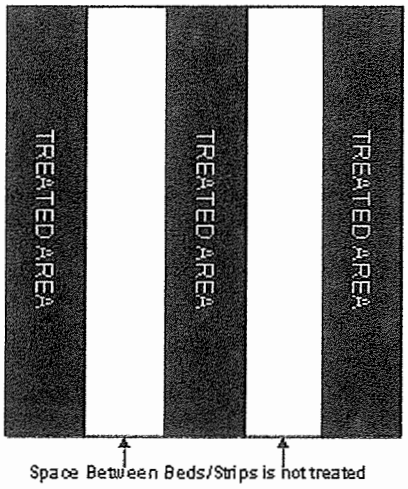
To calculate the broadcast equivalent rate for bedded or strip applications the following information is needed:

- pounds [or gallons] of product per treated acre
- strip or bed bottom width (inches)
- center-to-center row spacing (inches)
- application block size (acres)

Pounds [or gallons] of product **per treated acre** is the ratio of total amount of product applied to the size of the **total area treated** (e.g., the rate of product applied in the bed). For bedded or strip applications, the **total area treated** is the summation of the area (i.e., length x width) of each treated bed bottom or strip that is located within the application block as shown by the black areas in Figure 1 (e.g., black areas are 0.6A or 60% of the area within the application block). The area of the space between the beds/strips is not factored in the total area treated.

The **application block size** is the acreage within the perimeter of the fumigated portion of a field (including furrows, irrigation ditches, roadways). The perimeter of the application block is the border that connects the outermost edges of total area treated with the fumigant product.

Figure 1. Bedded/Strip Application (1 acre application block)

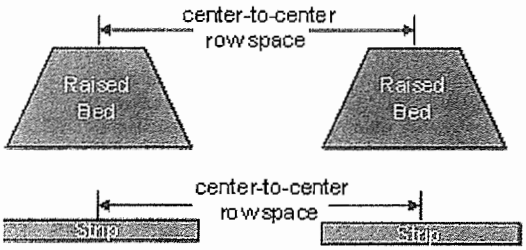


The "broadcast equivalent rate" must be calculated with the following formula:

$$\text{broadcast equivalent rate (pounds or gallons product/acre)} = \frac{\text{strip or bed bottom width (inches)}}{\text{center-to-center row spacing (inches)}} \times \text{pounds or gallons product/ treated acre applied in the strip or bed}$$

- The bed width must be measured from the bottom of bed.
- The center-to-center row spacing must calculate as shown in Figure 2.
- If there are any ditches, waterways, drive rows and other areas that are not fumigated that are in the application block, multiply the above broadcast equivalent equation by **(total area of strips or beds + row spacing)/(application block size).** A sample calculation is provided below.

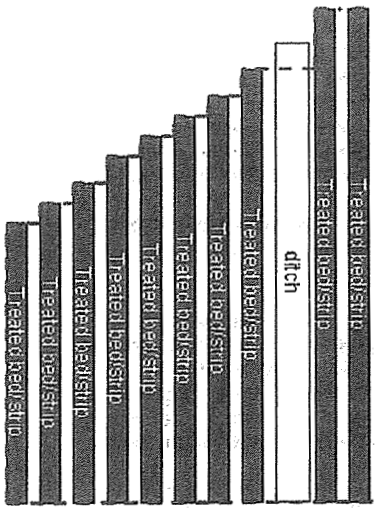
Figure 2. Center Row Spacing

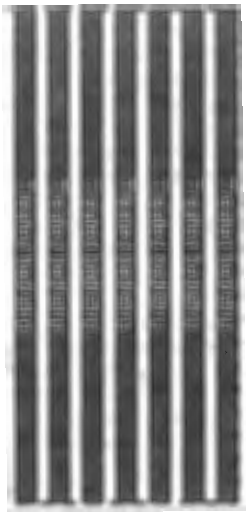


Sample broadcast equivalent rate calculation

Assumptions:

- Application method is shank bedded
- Bed width is 30 inches (measured at the bottom of bed)
- Center-to-center row spacing is 60 inches
- 200 ~~lbs~~ gallons of product per treated acre is applied in the beds
- Total application block size is 10 acres
- Ditch in the middle of application block is 0.25 acres
- Area of beds + row spacing is 9.75 acres





broadcast equivalent rate (~~lbs~~ gallons product/acre) = $\frac{\text{strip or bed bottom width (inches)}}{\text{center-to-center row spacing (inches)}}$ x $\frac{\text{area of strip or bed + row spacing}}{\text{application block size}}$ x ~~lbs~~ gallons product/ treated acre applied in the bed

= $\frac{\text{30 inch width beds}}{\text{60inch row spacing}}$ x $\frac{\text{9.75 acres}}{\text{10 acres}}$ x 200 ~~lbs~~ gallons product/ treated acre

= 97.5 ~~lbs~~ gallons product/acre

GENERAL BUFFER ZONE REQUIREMENTS

A buffer zone must be established for every fumigant application. The following describes the general buffer zone requirements:

- An area established around the perimeter of each application block. The buffer zone must extend outward from the edge of the application block perimeter equally in all directions.
- All non-handlers, including field workers, residents, pedestrians, and other bystanders, must be excluded from the buffer zone during the buffer zone period except for transit (see *Buffer Zone Exemptions for Transit on Roadways*).
- The buffer zone period begins at the start of the application and lasts for a minimum of 48-hours after the application is complete.

Buffer zone proximity

- Before the start of application, the certified applicator must determine whether their buffer zone will overlap any metam sodium or metam potassium (or other MITC generating pesticides) buffer zone(s).
- To reduce the potential for off-site movement from multiple fumigated fields, buffer zones from multiple metam sodium ~~and~~ metam potassium (or other MITC generating pesticides) application blocks must not overlap UNLESS:
  1. A minimum of 12 hours have elapsed from the time the earlier application(s) ~~for which a buffer is in place end(s)~~ until the later application ~~begins~~, and
  2. ~~Emergency preparedness and response measures~~ have been implemented if there are any residences or businesses within 300 feet of any of the buffer zones.

In addition, only for Low Release Height-Solid Stream Center Pivot Applications:

- Before the application begins, the certified applicator must determine whether the application block or its resulting buffer will overlap with a buffer that is already in effect.
- To reduce the potential for off-site movement from multiple fumigated fields, buffer zones from multiple metam sodium ~~and~~ metam potassium application blocks may not overlap UNLESS:
  - ~~A buffer zone may NOT overlap buffer zones from other application blocks which are already in effect UNLESS~~ both application blocks are treated using low release height-solid stream center pivot systems. The 12 hour waiting period does not apply in this instance.
    NOTE: Under this exception, buffer zones may only overlap with those from application blocks that are not within the same field (i.e., application blocks must be in separate fields that are treated with a different center pivot rig also equipped with low release height etc.). For buffers from application blocks within the same field to overlap, 12 hours must elapse from the completion of the first application until the start of the subsequent application.
  - Emergency preparedness and response measures specified in the label have been implemented if there are any homes, businesses, or property not within the control of the fumigator within 300 feet of each buffer zone.

Structures under the control of the owner of the application block

- Buffer zones must not include buildings used for storage (e.g., sheds, barns, garages), UNLESS:
  - The storage buildings are not occupied during the buffer zone period, and
  - The storage buildings do not share a common wall with an occupied structure.

Areas not under the control of the owner of the application block

- Buffer zones must not include residential areas (e.g., employee housing, private property), buildings (e.g., commercial, industrial), outdoor residential areas (e.g., lawns, gardens, play areas) and other areas that people may occupy, UNLESS:
  1. The occupants provide written agreement, prior to the start of the application, that they will voluntarily vacate the buffer zone during the entire buffer zone period, and
  2. Reentry by occupants and other non-handlers must not occur until,
     - The buffer zone period has ended, and
     - Sensory irritation is not experienced upon re-entry.

- Buffer zones must not include agricultural areas owned and/or operated by persons other than the owner of the application block, UNLESS:
  1. The owner of the application block can ensure that the buffer zone will not overlap with a metam sodium or metam potassium (or other MITC generating pesticides) buffer zone from any other property owners, except as provided in the *Buffer Zone Proximity* section, and
  2. The owner of the other property provides written agreement to the applicator that they, their employees, and other persons will stay out of the buffer zone during the entire buffer zone period.

- Buffer zones must not include roadways and rights of way UNLESS:
  1. The area is not occupied during the buffer zone period, and
  2. Entry by non-handlers is prohibited during the buffer zone period.

Buffer Zone Exemptions for Transit on Roadways

Vehicular and bicycle traffic on public and private roadways through the buffer zone is permitted. (NOTE: Buffer zones are not permitted to include bus stops or other locations where persons wait for public transit.)

- For all other publicly owned and/or operated areas such as parks, sidewalks, permanent walking paths, playgrounds, and athletic fields, buffer zones must not include these areas UNLESS:
  1. The area is not occupied during the buffer zone period,
  2. Entry by non-handlers is prohibited during the buffer zone period, and
  3. Written permission to include the public area in the buffer zone is granted by the appropriate state and/or local authorities responsible for management and operation of the area.

Certified applicators must comply with all local laws and regulations.

See the *Posting* section for additional requirements that may apply.

BUFFER ZONE DISTANCES

Buffer zone distances must be calculated using the application rate and the size of the application block.

Buffer zone distances

- Buffer zone distances must be based on look-up tables in this labeling (25 feet is the minimum distance regardless of site-specific application parameters).
- If after applying all applicable buffer zone credits the buffer zone is greater than ½ mile (2,640 ft), then the application is prohibited.
- Tables 1-11 as appropriate for the method of application must be used to determine the minimum buffer distances. Round up to the nearest rate and block size, where applicable.

~~NOTE to registrant: All buffer zone tables must be expressed in either the broadcast or the broadcast equivalent rate for the product.~~

BUFFER ZONE TABLES

– replace w/ product specific tables, no color, no gray colums

Metam Sodium

Table 1. Shank Injection Application - Broadcast Untarped Buffer Zone Distances in Feet

Broadcast Equivalent Application Rate (lb ai/A)	Application Block Size (acres)																								
	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	120	140	160
25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
30	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
35	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
40	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
45	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
55	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
60	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	35
65	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	31	36
70	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	28	33	38
75	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	36	41
80	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	33	38	43
85	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	27	35	40	46
90	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	27	28	37	43	49
95	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	27	29	30	39	45	51
100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	28	30	31	41	47	54
105	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	30	32	33	43	50	57
110	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	28	31	33	34	45	52	60
115	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	29	32	35	36	47	55	62
120	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	30	34	36	38	49	57	65
125	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	27	31	35	38	39	51	59	68
130	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	27	28	33	37	39	41	53	62	70
135	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	28	30	34	38	41	42	55	64	73
140	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	29	31	35	39	42	44	57	66	76
145	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	27	30	32	36	41	44	45	59	69	79
150	25	25	25	25	25	25	25	25	25	25	25	25	25	26	27	28	31	33	38	42	45	47	61	71	81
155	25	25	25	25	25	25	25	25	25	25	25	25	26	27	28	29	32	34	39	44	47	48	63	73	84
160	25	25	25	25	25	25	25	25	25	25	25	25	27	28	29	30	33	35	40	45	48	50	65	76	87
165	25	25	25	25	25	25	25	25	25	25	25	26	28	29	30	31	34	37	42	47	51	53	69	81	92
170	25	25	25	25	25	25	25	25	25	25	25	27	29	30	31	32	35	40	45	50	53	56	73	85	97
175	25	25	25	25	25	25	25	25	25	25	25	27	30	31	32	33	36	42	47	52	56	59	77	90	103
180	25	25	25	25	25	25	25	25	25	25	25	28	30	32	33	34	37	44	49	54	58	62	81	95	108
185	25	25	25	25	25	25	25	25	25	25	25	29	31	32	34	35	38	47	52	57	61	65	65	99	113
190	25	25	25	25	25	25	25	25	25	25	25	30	32	33	34	36	39	49	54	59	63	68	89	104	119
195	25	25	25	25	25	25	25	25	25	25	25	30	33	34	35	37	40	51	56	61	66	71	93	109	124
200	25	25	25	25	25	25	25	25	25	25	25	31	34	35	36	38	41	53	58	63	68	74	97	113	129
205	25	25	25	25	25	25	25	25	25	25	26	32	35	36	37	38	42	56	61	66	71	77	101	118	135
210	25	25	25	25	25	25	25	25	25	25	26	33	35	37	38	39	43	58	63	68	73	80	105	123	140
215	25	25	25	25	25	25	25	25	25	25	27	34	36	38	39	40	44	60	65	70	76	83	109	127	145
220	25	25	25	25	25	25	25	25	25	25	28	34	37	39	40	41	45	63	68	73	78	86	113	132	151
225	25	25	25	25	25	25	25	25	25	25	26	35	36	39	41	42	46	65	70	75	81	89	117	137	156
230	25	25	25	25	25	25	25	25	25	25	29	36	39	40	42	43	47	67	72	77	83	92	121	141	161
235	25	25	25	25	25	25	25	25	25	25	29	37	40	41	43	44	48	70	75	80	86	95	125	146	167
240	25	25	25	25	25	25	25	25	25	25	30	38	41	42	44	45	50	72	77	82	88	98	129	151	172
245	25	25	25	25	25	25	25	25	25	26	31	38	41	43	44	46	51	74	79	84	91	101	133	155	177
250	25	25	25	25	25	25	25	25	25	26	31	39	42	44	45	47	52	76	81	86	93	104	137	160	183
255	25	25	25	25	25	25	25	25	25	27	32	40	43	45	46	48	53	79	84	89	96	107	141	165	188
260	25	25	25	25	25	25	25	25	25	27	33	41	44	46	47	49	54	81	86	91	98	110	145	169	193
265	25	25	25	25	25	25	25	25	25	28	33	41	45	46	48	50	55	83	88	93	101	113	149	174	199
270	25	25	25	25	25	25	25	25	26	28	34	42	46	47	49	51	56	86	91	96	103	116	153	179	204
275	25	25	25	25	25	25	25	25	26	29	34	43	46	48	50	52	57	88	93	98	105	119	157	183	209
280	25	25	25	25	25	25	25	25	27	29	35	44	47	49	51	53	58	90	95	100	115	130	164	191	219
285	25	25	25	25	25	25	25	25	27	30	36	45	48	50	52	53	59	92	97	102	117	132	167	195	223
290	25	25	25	25	25	25	25	26	28	30	36	45	49	51	53	54	60	93	98	104	119	135	170	198	226
295	25	25	25	25	25	25	25	26	28	31	37	46	50	52	53	55	61	95	100	105	121	137	173	202	230
300	25	25	25	25	25	25	25	27	29	31	38	47	51	53	54	56	62	96	102	107	123	139	176	205	234
305	25	25	25	25	25	25	25	27	29	32	38	48	51	53	55	57	63	98	103	109	125	142	179	208	238
310	25	25	25	25	25	25	26	28	30	32	39	48	52	54	56	58	64	100	105	111	127	144	182	212	242
315	25	25	25	25	25	25	26	28	30	33	39	49	53	55	57	59	65	101	107	113	129	146	185	215	246
320	25	25	25	25	25	25	27	29	31	33	40	50	54	56	58	60	66	103	109	114	131	149	187	219	250

Table 2. Shank Injection Application - Broadcast with Water Seal Buffer Zone Distances in Feet

Broadcast Equivalent Application Rate (lb ai/A)	Application Block Size (acres)																							
	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	120	140	160
25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
30	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
35	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
40	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
45	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
50	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
55	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
60	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
65	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
70	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
75	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
80	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
85	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
90	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
95	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
105	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
110	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
115	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
120	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
125	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
130	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
135	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
140	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
145	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
150	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
155	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
160	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
165	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
170	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
175	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
180	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
185	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
190	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
195	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
200	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
205	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
210	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
215	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
220	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
225	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
230	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
235	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
240	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
245	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
250	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
255	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
260	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
265	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
270	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
275	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
280	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
285	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
290	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
295	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
300	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
305	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
310	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
315	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
320	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

Apply at least 0.25 inches of water immediately after application.

Table 3. Shank Injection Application - Bedded Tarped and Untarped Buffer Zone Distances in Feet

Broadcast Equivalent Application Rate (lb ai/A)	Application Block Size (acres)																									
	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	110	120	140	160
75	25	25	25	25	25	25	25	25	25	25	25	25	50	75	100	125	150	175	213	250	288	325	350	375	438	500
80	25	25	25	25	25	25	25	25	25	25	25	50	75	100	125	150	175	200	238	275	313	350	375	400	467	533
85	25	25	25	25	25	25	28	29	30	31	44	75	100	125	150	175	206	238	274	313	352	393	421	450	525	600
90	25	25	25	25	25	27	30	32	35	38	63	100	125	150	175	200	238	275	311	348	391	435	468	500	583	667
95	25	25	25	25	25	29	32	36	40	44	81	125	150	175	200	225	269	313	348	384	431	478	514	550	642	733
100	25	25	25	25	25	30	35	40	45	50	100	150	175	200	225	250	300	350	385	420	470	520	560	600	700	800
105	25	25	25	31	38	45	53	60	68	75	125	175	206	238	263	288	338	388	426	465	515	565	608	650	758	867
110	25	25	30	40	50	60	70	80	90	100	150	200	238	275	300	325	375	425	468	510	560	610	655	700	817	933
115	25	25	38	50	63	75	88	100	113	125	175	225	269	313	338	363	413	463	509	555	605	655	703	750	875	1000
120	25	30	45	60	75	90	105	120	135	150	200	250	300	350	375	400	450	500	550	600	650	700	750	800	933	1067
125	28	43	58	73	88	103	118	133	148	163	213	263	313	363	388	413	475	538	594	650	700	750	800	850	992	1133
130	40	55	70	85	100	115	130	145	160	175	225	275	325	375	400	425	500	575	638	700	750	800	850	900	1050	1200
135	53	68	83	98	113	128	143	159	173	188	238	288	338	388	413	438	525	613	681	750	800	850	900	950	1108	1267
140	65	80	95	110	125	140	155	170	185	200	250	300	350	400	425	450	550	650	725	800	850	900	950	1000	1167	1333
145	71	86	101	116	131	146	161	178	191	206	263	313	425	413	450	488	581	675	753	831	884	938	1000	1063	1240	1417
150	78	93	108	123	138	153	168	183	198	213	275	325	450	425	475	525	613	700	761	863	919	975	1050	1125	1313	1500
155	84	99	114	129	144	159	174	189	204	219	288	338	475	438	500	563	644	725	809	894	953	1013	1100	1188	1385	1583
160	90	105	120	135	150	165	180	195	210	225	300	350	400	450	525	600	675	750	838	925	988	1050	1150	1250	1458	1667
165	93	108	124	139	155	170	186	201	217	232	309	361	413	464	541	619	696	773	864	954	1018	1083	1186	1289	1504	1719
170	96	112	128	143	159	175	191	207	223	239	319	372	425	478	558	638	717	797	890	983	1049	1116	1222	1328	1549	1771
175	98	115	131	148	164	180	197	213	230	246	328	383	438	492	574	656	738	820	916	1012	1080	1148	1258	1367	1595	1823
180	101	118	135	152	169	186	203	219	236	253	338	394	450	506	591	675	759	844	942	1041	1111	1181	1294	1406	1641	1875
185	104	121	139	156	173	191	208	225	243	260	347	405	463	520	607	694	780	867	968	1070	1142	1214	1330	1445	1686	1927
190	107	125	143	160	178	196	214	232	249	267	356	416	475	534	623	713	802	891	995	1098	1173	1247	1366	1484	1732	1979
195	110	128	146	165	183	201	219	238	256	274	366	427	488	548	640	731	823	914	1021	1127	1204	1280	1402	1523	1777	2031
200	113	131	150	169	188	206	225	244	263	281	375	438	500	563	656	750	844	938	1047	1156	1234	1313	1438	1563	1823	2083
205	115	135	154	173	192	211	231	250	269	288	384	448	513	577	673	769	865	961	1073	1185	1265	1345	1473	1602	1868	2135
210	118	138	158	177	197	217	236	256	276	295	394	459	525	591	689	788	886	984	1099	1214	1296	1378	1509	1641	1914	2188
215	121	141	161	181	202	222	242	262	282	302	403	470	538	605	705	806	907	1008	1125	1243	1327	1411	1545	1680	1960	2240
220	124	144	165	186	206	227	248	268	289	309	413	481	550	619	722	825	928	1031	1152	1272	1358	1444	1581	1719	2005	2292
225	127	148	169	190	211	232	253	274	295	316	422	492	563	633	738	844	949	1055	1178	1301	1389	1477	1617	1758	2051	2344
230	129	151	173	194	216	237	259	280	302	323	431	503	575	647	755	863	970	1078	1204	1330	1420	1509	1653	1797	2096	2396
235	132	154	176	198	220	242	264	286	308	330	441	514	588	661	771	881	991	1102	1230	1359	1450	1542	1689	1836	2142	2448
240	135	158	180	203	225	248	270	293	315	338	450	525	600	675	788	900	1013	1125	1256	1388	1461	1575	1725	1875	2188	2500

Table 4. Center Pivot and Lateral Move Irrigation Application (High Release Height*) Buffer Zone Distance in Feet

Broadcast Equivalent Application Rate (lb ai/A)	Application Block Size (acres)															
	1	5	10	20	30	40	50	60	70	80	90	100	110	120	140	160
32	50	50	50	75	75	100	100	200	200	200	250	300	350	400	600	800
56	80	100	100	138	138	200	200	300	300	300	350	400	450	500	700	900
80	125	150	150	200	200	300	300	400	400	400	450	500	550	600	800	1000
100	160	188	200	250	269	363	382	475	488	500	550	600	650	700	900	1100
120	185	225	250	300	338	425	463	550	575	600	650	700	750	800	1000	1200
140	205	263	300	350	407	488	544	625	663	700	750	800	850	900	1100	1300
160	220	300	350	400	475	550	625	700	750	800	850	900	950	1000	1200	1400
180	235	313	375	450	557	638	719	825	888	950	1000	1050	1100	1150	1350	1550
200	250	325	400	500	638	725	813	950	1025	1100	1150	1200	1250	1300	1500	1700
220	262	338	425	550	719	813	907	1075	1163	1250	1300	1350	1400	1450	1650	1850
240	275	350	450	600	800	900	1000	1200	1300	1400	1450	1500	1550	1600	1800	2000
260	288	363	488	650	850	975	1100	1300	1400	1500	1563	1625	1688	1750	1950	2150
280	300	375	525	700	900	1050	1200	1400	1500	1600	1675	1750	1825	1900	2100	2300
300	312	389	563	750	950	1125	1300	1500	1600	1700	1788	1875	1963	2050	2250	2450
320	325	400	600	800	1000	1200	1400	1600	1700	1800	1900	2000	2100	2200	2400	2600

* This buffer zone distance table is for center pivot and lateral move irrigation equipment in which the: 1) release height OR spray height greater than 8 feet, and 2) there is > 30 lbs psi at the sprinkler head.

Table 5. Center Pivot and Lateral Move Irrigation Application (Medium Release Height**) Buffer Zone Distance in Feet

Broadcast Equivalent Application Rate (lb ai/A)	Application Block Size (acres)															
	1	5	10	20	30	40	50	60	70	80	90	100	110	120	140	160
32	25	25	25	25	25	50	50	75	75	75	88	100	150	200	400	600
56	25	38	50	50	50	75	75	138	138	138	169	200	250	300	500	700
80	25	50	75	75	75	100	100	200	200	200	250	300	350	400	600	800
100	37	63	94	107	125	163	182	275	288	300	350	400	450	500	700	900
120	50	75	113	138	175	225	263	350	375	400	450	500	550	600	800	1000
140	62	88	132	189	225	288	344	425	463	500	550	600	650	700	900	1100
160	75	100	150	200	275	350	425	500	550	600	650	700	750	800	1000	1200
180	87	113	175	250	357	438	519	625	688	750	800	850	900	950	1150	1350
200	100	125	200	300	438	525	613	750	825	900	950	1000	1050	1100	1300	1500
220	112	138	225	350	519	613	707	875	963	1050	1100	1150	1200	1250	1450	1650
240	125	150	250	400	600	700	800	1000	1100	1200	1250	1300	1350	1400	1600	1800
260	138	263	288	450	650	775	900	1100	1200	1300	1363	1425	1488	1550	1750	1950
280	150	175	325	500	700	850	1000	1200	1300	1400	1475	1550	1625	1700	1900	2100
300	162	188	363	550	750	925	1100	1300	1400	1500	1588	1675	1763	1850	2050	2250
320	175	200	400	600	800	1000	1200	1400	1500	1600	1700	1800	1900	2000	2200	2400

** This buffer zone distance table is for center pivot ~~irrigation~~ and lateral move equipment in which the: 1) release height AND spray height is less than 8 feet, AND 2) 29lbs. or less PSI at the sprinkler head, AND 3) there are no end guns.

Irrigation

Table 6. Center Pivot and Lateral Move Irrigation Application (Low Release Height-Solid Stream***) Buffer Zone Distance in Feet

Broadcast Equivalent Application Rate (lb ai/A)	Application Block Size (acres)															
	1	5	10	20	30	40	50	60	70	80	90	100	110	120	140	160
32	25	25	25	25	25	25	25	50	63	75	88	100	125	150	350	550
56	25	25	38	38	38	50	50	75	100	125	138	150	188	225	425	625
80	25	25	50	50	50	75	75	100	138	175	188	200	250	300	500	700
100	30	35	63	70	75	107	119	150	192	232	254	275	325	375	575	775
120	35	50	75	89	100	138	163	200	244	288	319	350	400	450	650	850
140	40	63	88	107	125	169	207	250	297	344	385	425	475	525	725	925
160	50	75	100	125	150	200	250	300	350	400	450	500	550	600	800	1000
180	60	94	125	157	188	238	294	363	419	475	532	588	644	700	900	1100
200	70	113	150	188	225	275	338	425	488	550	613	675	738	800	1000	1200
220	85	132	175	219	263	313	382	488	557	625	694	763	832	900	1100	1300
240	105	150	200	250	300	350	425	550	625	700	775	850	925	1000	1200	1400
260	125	163	225	288	350	413	494	613	694	775	857	938	1019	1100	1300	1500
280	145	175	250	325	400	475	563	675	763	850	938	1025	1113	1200	1400	1600
300	165	188	275	363	450	538	632	738	832	925	1019	1113	1207	1300	1500	1700
320	185	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1600	1800

*** This buffer zone distance table is for center pivot ~~irrigation~~ and lateral move equipment in which the: 1) release height AND spray height is less than 4 feet, AND 2) 29lbs. or less PSI at the sprinkler head, AND 3) application system produces a solid stream (e.g. drizzle boom, Smart Drop®), AND 4) there are no end guns.

Irrigation

Table 7. Sprinkler Irrigation Buffer Zone Distance in Feet

Broadcast Equivalent Application Rate (lb ai/A)	Application Block Size (acres)																				
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	60	70	80	90	100	110	120
32	25	25	25	25	25	25	25	25	25	25	25	25	50	50	75	75	75	88	100	150	200
56	38	38	38	38	38	40	43	45	48	50	50	50	75	75	138	138	138	169	200	250	300
80	50	50	50	50	50	55	60	65	70	75	75	75	100	100	200	200	200	250	300	350	400
100	55	57	58	60	63	69	75	81	87	94	107	125	163	182	275	288	300	350	400	450	500
120	62	65	67	70	75	83	90	98	105	113	138	175	225	263	350	375	400	450	500	550	600
140	68	73	78	83	88	97	106	114	123	132	169	225	288	344	425	463	500	550	600	650	700
160	75	81	88	94	100	110	120	130	140	150	200	275	350	425	500	550	600	650	700	750	800
180	80	88	97	105	113	125	138	150	163	175	250	357	438	519	625	688	750	800	850	900	950
200	87	97	106	116	125	131	140	146	155	200	300	438	525	613	750	825	900	950	1000	1050	1100
220	93	104	116	127	138	155	173	190	208	225	350	519	613	707	875	963	1050	1100	1150	1200	1250
240	100	113	125	138	150	170	190	210	230	250	400	600	700	800	1000	1100	1200	1100	1300	1350	1400
260	115	152	189	226	263	268	273	278	283	288	450	650	775	900	1100	1200	1300	1363	1425	1488	1550
280	125	138	150	163	175	205	235	265	295	325	500	700	850	1000	1200	1300	1400	1475	1550	1625	1700
300	137	150	163	175	188	223	258	293	328	363	550	750	925	1100	1300	1400	1500	1588	1675	1763	1850
320	150	163	175	188	200	240	280	320	360	400	600	800	1000	1200	1400	1500	1600	1700	1800	1900	2000

Table 8. Drench Application Buffer Zone Distances in Feet

Broadcast Equivalent Application Rate (lb ai/A)	Application Block Size (acres)																					
	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	120
25	28	31	34	36	39	42	44	47	51	55	70	86	94	102	109	125	141	156	164	180	195	211	234
30	34	37	41	44	47	50	53	56	61	66	84	103	113	122	131	150	169	188	197	216	234	253	281
35	40	44	47	51	55	58	62	66	71	77	98	120	131	142	153	175	197	219	230	252	273	295	328
40	46	50	54	58	63	67	71	75	81	88	113	138	150	163	175	200	225	250	263	288	313	338	375
45	51	56	61	66	70	75	80	84	91	99	127	155	169	183	197	225	253	281	295	323	352	380	422
50	57	62	68	73	78	83	88	94	102	109	141	172	188	203	219	250	281	313	328	359	391	422	469
55	63	68	74	80	86	92	97	103	112	120	155	189	206	223	241	275	309	344	361	395	430	464	516
60	68	75	81	87	94	100	106	113	122	131	169	206	225	244	263	300	338	375	394	431	469	506	563
65	74	81	88	95	102	108	115	122	132	142	183	223	244	264	284	325	366	406	427	467	508	548	609
70	80	87	95	102	109	117	124	131	142	153	197	241	263	284	306	350	394	438	459	503	547	591	656
75	85	93	101	109	117	125	133	141	152	164	211	258	281	305	328	375	422	469	492	539	586	633	703
80	91	100	108	117	125	134	142	150	163	175	225	275	300	325	350	400	450	500	525	575	625	675	750
85	97	106	115	124	133	142	150	159	173	186	239	292	319	345	372	425	478	531	558	611	664	717	797
90	102	112	122	131	141	150	159	169	183	197	253	309	338	366	394	450	506	563	591	647	703	759	844
95	108	118	128	138	148	159	168	178	193	208	267	327	356	386	416	475	534	594	623	683	742	802	891
100	114	124	135	145	156	167	177	188	203	219	281	344	375	406	438	500	563	625	656	719	781	844	938
105	119	131	142	153	164	175	186	197	213	230	295	361	394	427	459	525	591	656	689	755	820	886	984
110	125	137	149	160	172	184	195	206	223	241	309	378	413	447	481	550	619	688	722	791	859	928	1031
115	131	143	155	167	180	192	203	216	234	252	323	395	431	467	503	575	647	719	755	827	898	970	1078
120	137	149	162	175	188	200	212	225	244	263	338	413	450	488	525	600	675	750	788	863	938	1013	1125
125	142	155	169	182	195	209	221	234	254	273	352	430	469	508	547	625	703	781	820	898	977	1055	1172
130	148	162	176	189	203	217	230	244	264	284	366	447	488	528	569	650	731	813	853	934	1016	1097	1219
135	154	168	182	197	211	225	239	253	274	295	380	464	506	548	591	675	759	844	886	970	1055	1139	1266
140	159	174	189	204	219	234	248	263	284	306	394	481	525	569	613	700	788	875	919	1006	1094	1181	1313
145	165	180	196	211	227	242	256	272	295	317	408	498	544	589	634	725	816	906	952	1042	1133	1223	1359
150	171	187	203	218	234	250	265	281	305	328	422	516	563	609	656	750	844	938	984	1078	1172	1266	1406
155	176	193	209	225	242	259	274	291	315	339	436	533	581	630	678	775	872	969	1017	1114	1211	1308	1453
160	182	199	216	233	250	267	283	300	325	350	450	550	600	650	700	800	900	1000	1050	1150	1250	1350	1500
165	188	205	223	240	258	275	292	309	335	361	464	567	619	670	722	825	928	1031	1083	1186	1289	1392	1547
170	193	211	230	248	266	284	301	319	345	372	478	584	638	691	744	850	956	1063	1116	1222	1328	1434	1594
175	199	218	236	255	273	292	310	328	355	383	492	602	656	711	766	875	984	1094	1148	1258	1367	1477	1641
180	205	224	243	262	281	300	318	338	366	394	506	619	675	731	788	900	1013	1125	1181	1294	1406	1519	1688
185	210	230	250	269	289	309	327	347	376	405	520	636	694	752	809	925	1041	1156	1214	1330	1445	1561	1734
190	216	236	257	277	297	317	336	356	386	416	534	653	713	772	831	950	1069	1188	1247	1366	1484	1603	1781
195	222	243	263	284	305	325	345	366	396	427	548	670	731	792	853	975	1097	1219	1280	1402	1523	1645	1828
200	228	249	270	291	313	334	354	375	406	438	563	688	750	813	875	1000	1125	1250	1313	1438	1563	1688	1875
205	233	255	277	299	320	342	363	384	416	448	577	705	769	833	897	1025	1153	1281	1345	1473	1602	1730	1922
210	239	261	284	306	328	350	371	394	427	459	591	722	788	853	919	1050	1181	1313	1378	1509	1641	1772	1969
215	245	267	290	313	336	359	380	403	437	470	605	739	806	873	941	1075	1209	1344	1411	1545	1680	1814	2016
220	250	274	297	320	344	367	389	413	447	481	619	756	825	894	963	1100	1238	1375	1444	1581	1719	1856	2063
225	256	280	304	328	352	375	398	422	457	492	633	773	844	914	984	1125	1266	1406	1477	1617	1758	1898	2109
230	262	286	311	335	359	384	407	431	467	503	647	791	863	934	1006	1150	1294	1438	1509	1653	1797	1941	2156
235	267	292	317	342	367	392	416	441	477	514	661	808	881	955	1028	1175	1322	1469	1542	1689	1836	1983	2203
240	273	299	324	350	375	401	425	450	488	525	675	825	900	975	1050	1200	1350	1500	1575	1725	1875	2025	2250
245	279	305	331	357	383	409	433	459	498	536	689	842	919	995	1072	1225	1378	1531	1608	1761	1914	2067	2297
250	284	311	338	364	391	417	442	469	508	547	703	859	938	1016	1094	1250	1406	1563	1641	1797	1953	2109	2344
255	290	317	344	371	398	426	451	478	518	558	717	877	956	1036	1116	1275	1434	1594	1673	1833	1992	2152	2391
260	296	323	351	379	406	434	460	488	528	569	731	894	975	1056	1138	1300	1463	1625	1706	1869	2031	2194	2438
265	301	330	358	386	414	442	469	497	538	580	745	911	994	1077	1159	1325	1491	1656	1739	1905	2070	2236	2484
270	307	336	365	393	422	451	478	506	548	591	759	928	1013	1097	1181	1350	1519	1688	1772	1941	2109	2278	2531
275	313	342	371	400	430	459	486	516	559	602	773	945	1031	1117	1203	1375	1547	1719	1805	1977	2148	2320	2578
280	319	348	378	408	438	467	495	525	569	613	788	963	1050	1138	1225	1400	1575	1750	1838	2013	2188	2363	2625
285	324	354	385	415	445	476	504	534	579	623	802	980	1069	1158	1247	1425	1603	1781	1870	2048	2227	2405	2640
290	330	361	392	422	453	484	513	544	589	634	816	997	1088	1178	1269	1450	1631	1813	1903	2084	2266	2447	2686
295	336	367	398	430	461	492	522	553	599	645	830	1014	1106	1198	1291	1475	1659	1844	1936	2120	2305	2489	2733
300	341	373	405	437	469	501	531	563	609	656	844	1031	1125	1219	1313	1500	1688	1875	1969	2156	2344	2531	2779
305	347	379	412	444	477	509	539	572	620	667	858	1048	1144	1239	1334	1525	1716	1906	2002	2192	2383	2573	2825
310	353	386	419	451	484	517	548	581	630	678	872	1066	1163	1259	1356	1550	1744	1938	2034	2228	2422	2616	2872
315	358	392	425	459	492	526	557	591	640	689	886	1083	1181	1280	1378	1575	1772	1969	2067	2264	2461	2640	2918
320	364	398	432	466	500	534	566	600	650	700	900	1100	1200	1300	1400	1600	1800	2000	2100	2300	2500	2686	2964

Buffer zone distances cannot be greater than ½ mile (2,640 feet). If after applying applicable credits the buffer zone distances in bold are still greater than ½ mile (2,640 feet) the application is prohibited.

Table 9. Drip Irrigation Tarped and Untarped Application Buffer Zone Distances in Feet

Broadcast Equivalent Application Rate (lb ai/A)	Application Block Size (acres)																
	1	2	3	4	5	6	7	8	9	10	20	30	40	50	60	70	80
16	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
28	25	25	25	25	25	25	25	25	25	25	38	38	50	50	63	76	88
40	25	25	25	25	25	25	25	25	25	25	50	50	75	75	100	125	150
50	25	25	25	25	25	26	28	29	31	32	57	57	82	82	113	140	163
60	25	25	25	25	25	28	30	33	35	38	63	63	88	88	125	150	175
70	25	25	25	25	25	29	33	36	40	44	69	69	94	94	138	163	188
80	25	25	25	25	25	30	35	40	45	50	75	75	100	100	150	175	200
90	25	27	29	30	32	37	42	47	52	57	82	94	113	125	175	207	238
100	25	28	32	35	38	43	48	53	58	63	88	113	125	150	200	250	275
110	25	30	35	39	44	49	54	59	64	69	94	132	138	175	225	269	313
120	25	31	38	44	50	55	60	65	70	75	100	150	150	200	250	300	350
130	32	37	41	46	50	56	63	69	76	82	125	188	200	250	300	350	400
140	38	41	44	47	50	58	65	73	80	88	150	225	250	300	350	400	450
150	44	46	47	49	50	59	68	76	85	94	175	263	300	350	400	450	500
160	50	50	50	50	50	60	70	80	90	100	200	300	350	400	450	500	550
170	51	52	53	54	55	64	74	85	96	106	213	319	372	425	478	531	584
180	52	54	56	58	60	68	79	90	101	113	225	338	394	450	506	563	634
190	53	56	59	62	65	71	83	95	107	119	238	356	416	475	534	594	684
200	54	58	62	66	70	75	88	100	113	125	250	375	438	500	563	625	734
210	55	60	65	70	75	79	92	105	118	131	263	394	459	525	591	656	784
220	56	62	68	74	80	83	96	110	124	138	275	413	481	550	619	688	834
230	57	64	71	78	85	86	101	115	129	144	288	431	503	575	647	719	884
240	58	66	75	82	90	90	105	120	135	150	300	450	525	600	675	750	934

Furrow w/ Bor...

Table 10. Flood Application Buffer Zone Distances in Feet

Broadcast Equivalent Application Rate (lb ai/A)	Application Block Size (acres)																						
	1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	70	80	90	100	120
25	25	25	25	25	25	34	36	38	41	43	55	63	70	78	90	102	113	125	137	148	160	172	195
30	25	25	25	35	38	40	43	46	49	52	66	75	84	94	108	122	136	150	164	178	192	206	234
35	25	34	37	40	44	47	50	54	57	60	77	88	98	109	126	142	159	175	191	208	224	241	273
40	35	39	43	46	50	54	58	61	65	69	88	100	113	125	144	163	181	200	219	238	256	275	313
45	39	44	48	52	56	60	65	69	73	77	98	113	127	141	162	183	204	225	246	267	288	309	352
50	44	48	53	58	63	67	72	77	81	86	109	125	141	156	180	203	227	250	273	297	320	344	391
55	48	53	58	64	69	74	79	84	89	95	120	138	155	172	198	223	249	275	301	327	352	378	430
60	53	58	64	69	75	81	86	92	98	103	131	150	169	188	216	244	272	300	328	356	384	413	469
65	57	63	69	75	81	87	93	100	106	112	142	163	183	203	234	264	295	325	355	386	416	447	508
70	61	68	74	81	88	94	101	107	114	120	153	175	197	219	252	284	317	350	383	416	448	481	547
75	66	73	80	87	94	101	108	115	122	129	164	188	211	234	270	305	340	375	410	445	480	516	586
80	70	78	85	93	100	108	115	123	130	138	175	200	225	250	288	325	363	400	438	475	513	550	625
85	74	82	90	98	106	114	122	130	138	146	186	213	239	266	305	345	385	425	465	505	545	584	664
90	79	87	96	104	113	121	129	138	146	155	197	225	253	281	323	366	408	450	492	534	577	619	703
95	83	92	101	110	119	128	137	145	154	163	208	238	267	297	341	386	430	475	520	564	609	653	742
100	88	97	106	116	125	134	144	153	163	172	219	250	281	313	359	406	453	500	547	594	641	688	781
105	92	102	112	121	131	141	151	161	171	180	230	263	295	328	377	427	476	525	574	623	673	722	820
110	96	107	117	127	138	148	158	168	179	189	241	275	309	344	395	447	498	550	602	653	705	756	859
115	101	111	122	133	144	155	165	176	187	198	252	288	323	359	413	467	521	575	629	683	737	791	898
120	105	116	128	139	150	161	173	184	195	206	263	300	338	375	431	488	544	600	656	713	769	825	938
125	109	121	133	145	156	168	180	191	203	215	273	313	352	391	449	508	566	625	684	742	801	859	977
130	114	126	138	150	163	175	187	199	211	223	284	325	366	406	467	528	589	650	711	772	833	894	1016
135	118	131	143	156	169	181	194	207	219	232	295	338	380	422	485	548	612	675	738	802	865	928	1055
140	123	136	149	162	175	188	201	214	228	241	306	350	394	438	503	569	634	700	766	831	897	963	1094
145	127	140	154	168	181	195	208	222	236	249	317	363	408	453	521	589	657	725	793	861	929	997	1133
150	131	145	159	173	188	202	216	230	244	258	328	375	422	469	539	609	680	750	820	891	961	1031	1172
155	136	150	165	179	194	208	223	237	252	266	339	388	436	484	557	630	702	775	848	920	993	1066	1211
160	140	155	170	185	200	215	230	245	260	275	350	400	450	500	575	650	725	800	875	950	1025	1100	1250
165	144	160	175	191	206	222	237	253	268	284	361	413	464	516	593	670	748	825	902	980	1057	1134	1289
170	149	165	181	197	213	228	244	260	276	292	372	425	478	531	611	691	770	850	930	1009	1089	1169	1328
175	153	170	186	202	219	235	252	268	284	301	383	438	492	547	629	711	793	875	957	1039	1121	1203	1367
180	158	174	191	208	225	242	259	276	293	309	394	450	506	563	647	731	816	900	984	1069	1153	1238	1406
185	162	179	197	214	231	249	266	283	301	318	405	463	520	578	665	752	838	925	1012	1098	1185	1272	1445
190	166	184	202	220	238	255	273	291	309	327	416	475	534	594	683	772	861	950	1039	1128	1217	1306	1484
195	171	189	207	225	244	262	280	299	317	335	427	488	548	609	701	792	884	975	1066	1158	1249	1341	1523
200	175	194	213	231	250	269	288	306	325	344	438	500	563	625	719	813	906	1000	1094	1188	1281	1375	1563
205	179	199	218	237	256	275	295	314	333	352	448	513	577	641	737	833	929	1025	1121	1217	1313	1409	1602
210	184	203	223	243	263	282	302	322	341	361	459	525	591	656	755	853	952	1050	1148	1247	1345	1444	1641
215	188	208	228	249	269	289	309	329	349	370	470	538	605	672	773	873	974	1075	1176	1277	1377	1478	1680
220	193	213	234	254	275	296	316	337	358	378	481	550	619	688	791	894	997	1100	1203	1306	1409	1513	1719
225	197	218	239	260	281	302	323	345	366	387	492	563	633	703	809	914	1020	1125	1230	1336	1441	1547	1758
230	201	223	244	266	288	309	331	352	374	395	503	575	647	719	827	934	1042	1150	1258	1366	1473	1581	1797
235	206	228	250	272	294	316	338	360	382	404	514	588	661	734	845	955	1065	1175	1285	1395	1505	1616	1836
240	210	233	255	278	300	323	345	368	390	413	525	600	675	750	863	975	1088	1200	1313	1425	1538	1650	1875
245	214	237	260	283	306	329	352	375	398	421	536	613	689	766	880	995	1110	1225	1340	1455	1570	1684	1914
250	219	242	266	289	313	336	359	383	406	430	547	625	703	781	898	1016	1133	1250	1367	1484	1602	1719	1953
255	223	247	271	295	319	343	367	390	414	438	558	638	717	797	916	1036	1155	1275	1395	1514	1634	1753	1992
260	228	252	278	301	325	349	374	398	423	447	569	650	731	813	934	1056	1178	1300	1422	1544	1666	1788	2031
265	232	257	282	306	331	356	381	406	431	455	580	663	745	828	952	1077	1201	1325	1449	1573	1698	1822	2070
270	236	262	287	312	338	363	388	413	439	464	591	675	759	844	970	1097	1223	1350	1477	1603	1730	1856	2109
275	241	266	292	318	344	370	395	421	447	473	602	688	773	859	988	1117	1246	1375	1504	1633	1762	1891	2148
280	245	271	298	324	350	376	403	429	455	481	613	700	788	875	1006	1138	1269	1400	1531	1663	1794	1925	2188
285	249	276	303	330	356	383	410	436	463	490	623	713	802	891	1024	1158	1291	1425	1559	1692	1826	1959	2227
290	254	281	308	335	363	390	417	444	471	498	634	725	816	906	1042	1178	1314	1450	1586	1722	1858	1994	2266
295	258	286	313	341	369	396	424	452	479	507	645	738	830	922	1060	1198	1337	1475	1613	1752	1890	2028	2305
300	263	291	319	347	375	403	431	459	488	516	656	750	844	938	1078	1219	1359	1500	1641	1781	1922	2063	2344
305	267	295	324	353	381	410	438	467	496	524	667	763	858	953	1096	1239	1382	1525	1668	1811	1954	2097	2383
310	271	300	329	358	388	417	446	475	504	533	678	775	872	969	1114	1259	1405	1550	1695	1841	1986	2131	2422
315	276	305	335	364	394	423	453	482	512	541	689	788	886	984	1132	1280	1427	1575	1723	1870	2018	2166	2461
320	280	310	340	370	400	430	460	490	520	550	700	800	900	1000	1150	1300	1450	1600	1750	1900	2050	2200	2500

Table 11. Rotary Tiller and Spray Blade Applications Buffer Zone Distance in Feet

Broadcast Equivalent Application Rate (lb ai/A)	Application Block Size (acres)													
	1	5	6	7	8	9	10	20	30	40	50	60	70	80
32	25	25	25	25	25	25	25	25	25	25	25	25	25	25
56	25	25	25	25	25	25	25	25	25	25	25	25	25	25
80	25	25	25	25	25	25	25	25	25	25	25	25	25	25
100	25	25	25	25	25	25	25	25	25	25	25	25	25	25
120	25	25	25	25	25	25	25	25	25	25	25	25	25	25
140	25	25	25	25	25	25	25	25	25	25	25	25	25	25
160	25	25	25	25	25	25	25	25	25	25	25	25	25	25
180	25	25	25	25	25	25	25	25	25	25	42	57	64	72
200	25	25	25	25	25	25	25	25	25	25	58	88	103	118
220	25	25	25	25	25	25	25	25	25	25	74	119	142	164
240	25	25	25	25	25	25	25	25	25	25	90	150	180	210
260	25	25	27	29	30	32	34	49	64	75	135	188	218	248
280	25	25	29	32	36	39	43	73	103	125	180	225	255	285
300	25	25	30	36	41	47	52	97	142	275	225	263	293	323
320	25	25	32	39	46	53	60	120	180	225	270	300	330	360

Table 12 - Weed Sprayer/Spray On & Irrigate App. BZ distance in feet

BUFFER ZONE CREDITS

The buffer zone distances for Sectagon 42 applications may be reduced by the percentages listed below. Credits may be added, but credits cannot exceed 80%. Also the minimum buffer zone distance is 25 feet regardless of buffer zone credits available.

See www.tarpcredits.epa.gov for a list of tarps...

- 10 % reduction in buffer zone distance, IF using Canslit Metalized Black, Canslit Metalized White, Pliant Metalized, Olefinas Embossed VIF, Guardian AgroPlastics VIF, Cadillac VIF, Ginegar VIF, XL Black Blockade (0.00125"), Pliant Blockade, or FilmTec VIF tarps.
- 20 % reduction in buffer zone distance, IF using Mid South VIF, Dow SARANEX A, Dow SARANEX B, Ginegar Ozgard, Hytiblock 7 Black (0.00125"), Hytibar (1.5 mil), Klerks VIF, or Klerk Hytibar VIF tarps.
- 30% reduction in buffer zone distance, IF using Eval/Mitsui TIF (1.38 mil), Berry EVOH-Supreme Barrier, AEP-One, Berry EVOH-High Barrier, Berry High Barrier w/improved toughness, Raven TIF "VaporSafeTM" (1.0 mil), or Raven TIF "VaporSafeTM" (1.4 mil) tarps.
- 10% reduction in buffer zone distance, IF the organic content of the soil in the application block is ≥ 1% - 2%; a 20% reduction is buffer zone distance, IF the organic content of the soil in the application block is >2% - 3%; and a 30% reduction in the buffer zone distance, IF the organic content of the soil in the application block is >3%.
- 10% reduction in buffer zone distance, IF the soil temperature is measured to be 50°F or less. Record temperature measurements at the application depth or 12 inches, whichever is shallower.
- 10% reduction in the buffer zone distance, IF the clay content of the soil in the application block is greater than 27%.

Examples of Buffer Zone Calculations with Credits Applied

If the buffer zone is 50 feet and the application qualifies for a buffer zone reduction credit since the soil organic content is 1.5%, then the buffer zone can be reduced by 10%, i.e., reduced by 5 feet based on the following calculation: 50 feet – (50 feet x 10%) = 45 feet.

If the buffer zone is 50 feet and the application qualifies for two buffer zone credits since the soil organic content is 1.5% and the clay content is greater than 27%, then the buffer zone can be reduced by 20% (10% organic content credit + 10% clay content credit), i.e., reduced by 10 feet based on the following calculation 50 feet - (50 feet x 20%) = 40 feet.

POSTING FUMIGANT BUFFER ZONES

- Posting of a **buffer zone** is required unless there is a physical barrier along or outside the perimeter of the buffer zone that prevents bystander access to the buffer zone.
- Buffer Zone signs must be placed at all usual points of entry and along likely routes of approach from areas where people not under the owner's control may approach the buffer zone.
  - Some examples of points of entry include, but are not limited to, roadways, sidewalks, paths, and bike trails.
  - Some examples of likely routes of approach include, but are not limited to, the area between a buffer zone and a roadway, or the area between a buffer zone and a housing development.
  - When posting, the certified applicator supervising the application must ensure compliance with all local laws and regulations.
- Buffer Zone signs must meet the following criteria:
  - The printed side of the sign must face away from the application block toward areas from which people could approach.
  - Signs must remain legible during the entire posting period and must meet the general standards outlined in the WPS for sign size, text size, and legibility (see 40 CFR §170.120).
  - Signs must be posted no sooner than 24 hours prior to the start of the application and remain posted until the buffer zone period has expired.
  - Signs must be removed within 3 days after the end of the buffer zone period.
  - Buffer Zone signs which meet the criteria above will be provided at points of sale for applicators to use. Templates may be downloaded from http://www.epa.gov/pesticides/reregistration/soil_fumigants/.
  - The Buffer Zone signs must contain the following information:
    - The 'Do Not Walk' symbol
    - DO NOT ENTER/NO ENTRE,
    - Metam Sodium Sectagon 42 Fumigant BUFFER ZONE,
    - ~~space for~~ Contact information for the certified applicator in charge of the fumigation.

Exception: If multiple contiguous blocks are fumigated within a 14-day period, the entire periphery of the contiguous blocks' buffer zones may be posted. Buffer Zone signs must be posted no sooner than 24-hours prior to the start of the first application. The signs must remain posted until the last buffer zone period expires and signs ~~may remain posted~~ must be removed within ~~until~~ 3-days after the buffer zone period for the last block has expired.

RESTRICTIONS FOR DIFFICULT TO EVACUATE SITES

- Difficult to evacuate sites are pre-K to grade 12 schools, state licensed daycare centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons.
- No fumigant application with a buffer zone greater than 300 feet is permitted within 1/4 mile (1320 feet) of difficult to evacuate sites unless the site is not occupied by children from state-licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36-hour period following the end of the application.
- No fumigant application with a buffer zone of 300 feet or less is permitted within 1/8 mile (660 feet) of difficult to evacuate sites unless the site is not occupied by children from state-licensed day care centers, students (pre-K to grade 12), patients, or prisoners during the application and the 36-hour period following the end of the application.

EMERGENCY PREPAREDNESS AND RESPONSE Measure

If the buffer zone is 25 feet, then the Emergency Preparedness and Response ~~requirements~~ measures are not applicable.

Triggers for Emergency Preparedness and Response Measures:

The certified applicator must either follow the directions under the *Fumigant Site Monitoring* section or follow the directions under the *Response Information for Neighbors* section if:

- the buffer zone is greater than **25 feet** ~~or~~ but less than or equal to **100 feet**, and there are residences or businesses within **50 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **100 feet** but less than or equal to **200 feet**, and there are residences or businesses within **100 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **200 feet** but less than or equal to **300 feet**, and there are residences or businesses within **200 feet** from the outer edge of the buffer zone, or
- the buffer zone is greater than **300 feet** or the **buffer zones** overlap, and there are residences or businesses within **300 feet** from the outer edge of the buffer zone.

Fumigant Site Monitoring

NOTE: *Fumigant Site Monitoring* is ONLY required if the *Emergency Preparedness and Response Measures* are triggered AND directions from the *Response Information for Neighbors* section are not followed.

From the start of the application until the buffer zone period expires, a certified applicator or handler(s) under his/her supervision must:

- Monitor for sensory irritation in areas between the buffer zone outer perimeter and residences and businesses that trigger this requirement.
- Monitoring for sensory irritation must begin in the evening on the day of application and continue until the buffer zone period expires. Monitor a minimum of 8 times during the buffer zone period, including these periods:

- 1 hour before sunset,
- during the night,
- 1 hour after sunrise, and
- during daylight hours.

Implement the emergency response plan immediately if a handler monitoring experiences sensory irritation.

Response Information For Neighbors

NOTE: *Response Information for Neighbors* is ONLY required if the *Emergency Preparedness and Response Measures* are triggered AND directions from the *Fumigant Site Monitoring* section are not followed.

The certified applicator supervising the application ~~(or handler(s) under his/her supervision)~~ must ensure that residences and businesses that trigger the requirement have been provided the response information at least **1 week** before the application starts. The information provided may include application dates that range for no more than **4 weeks**. ~~After 4 weeks,~~ the information must be delivered again.

the application does not occur when specified,

Information that must be included:

- The ~~general~~ location of the application block.
- Fumigant(s) applied including the active ingredient, name of the fumigant product(s), and the EPA Registration number.
- Contact information for the applicator and property owner.
- Time period in which the application is planned to take place (must not range more than 4 weeks).
- Early signs and symptoms of exposure to the fumigant(s) applied, what to do, and who to call if you believe you are being exposed (911 in most cases).
- How to find additional information about fumigants.

The method used to share the response information for neighbors can be accomplished through mailings, door hangers, or other methods that will effectively inform the residences and businesses within the required distance from the edge of the buffer zone.

NOTICE TO STATE AND TRIBAL LEAD AGENCIES

If your state and/or tribal lead agency requires notice, information must be provided to the appropriate state or tribal lead agency prior to the application. Please refer to www.epa.gov/fumigantstatenotice for a list of states and tribal lead agencies that require notice and information on how to submit the information.

The information that must be provided to state and tribal lead agencies includes the following:

- Location of the application blocks,
- Fumigant(s) applied including EPA registration number,
- Applicator and property owner contact information, and
- Time period that fumigation may occur.

EMERGENCY RESPONSE PLAN

The certified applicator must include in the FMP a written emergency response plan that identifies:

- evacuation routes,
- locations of telephones,
- contact information for first responders and local/state/federal/tribal personnel, and
- emergency procedures/responsibilities (e.g., adding water to the field, repairing tarps, fixing equipment, evacuating upwind) if:
  - there is an incident,
  - sensory irritation is experienced outside of the buffer zone, and/or there are equipment/tarp/seal failure or complaints, or other emergencies.

SITE-SPECIFIC FUMIGATION MANAGEMENT PLAN (FMP)

Prior to the start of application, the certified applicator supervising the application must verify that a site-specific fumigation management plan (FMP) exists for each application block. 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, 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 application.

Each site specific FMP must contain the following elements:

- Certified Applicator Supervising the Application
  - Name,
  - Phone number,
  - Pesticide applicator license and/ or certificate number,
  - Specify if commercial or private applicator
  - Employer name,
  - Employer address, and
  - Date and location of completing EPA approved soil fumigant 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 application block owner
  - Map, aerial photo, or detailed sketch showing:
    - application block location
    - application block dimensions
    - buffer zone dimensions
    - property lines
    - roadways
    - rights-of-ways
    - sidewalks
    - permanent walking paths
    - bus stops
    - nearby application blocks
    - surrounding structures (occupied and non-occupied)
    - locations of Buffer Zone signs, and
    - locations of difficult to evacuate sites with distances from the application block labeled
- General application information
  - Target application date/window,
  - Fumigant product name, and
  - EPA registration number.
- Tarp Plan (if tarp is used)
  - Schedule for checking tarps for damage, tears, and other problems
  - Minimum size of damage that will be repaired
  - Factors used to determine when tarp repair will be conducted
  - Equipment/methods used to perforate tarps
  - Target dates for perforating tarps
  - Target dates for removing tarps
- Soil conditions
  - Description of soil texture and moisture in application block,
  - Method used to determine soil moisture, and
  - Soil temperature measurements if air temperatures were above 100°F in any of the 3 days prior to the application
- Buffer zones
  - Application method,
  - Injection depth,
  - Application rate from lookup table on label,
  - Application block size from lookup table on label,
  - Credits applied and measurements taken (if applicable),
    - Tarp brand name, lot number, thickness, manufacturer, batch number, and part number
    - Organic matter content
    - Clay content

move to post-app summary

- Soil temperature
  - Buffer zone distance, and
  - Description of areas in the buffer zone that are not under the control of the owner of the application block. If buffer zones extend onto areas not under the control of the owner, attach the written agreement and keep it with the FMP
- Record Emergency Response Plan as described in the *Emergency Response Plan* section
- Posting of Fumigant Treated Area and Buffer Zone
  - Person(s) who will post and remove (if different) Fumigant Treated Area and Buffer Zone signs, and
  - Location of Buffer Zone signs
- Emergency Preparedness and Response Measures (if applicable)
  - Fumigant site monitoring (if applicable):
    - When and where it will be conducted;
  - Response information for neighbors (if applicable):
    - List of residences and businesses informed,
    - Name and phone number of person providing information, and
    - Method of providing the information
- State and/or tribal lead agency advance notification (if state and/or tribal lead agency requires notice, provide a list of contacts that were notified and date notified)
- Plan describing how communication will take place between the certified applicator supervising the application, the owner, and other on-site handlers (e.g., tarp perforators/removers, irrigators) for complying with label requirements (e.g., buffer zone location, buffer zone start and end times, timing of tarp perforation and removal, PPE)
  - Name and phone number of persons contacted by the certified applicator, and
  - Date contacted
- Handler (including Certified Applicators) Information and PPE
  - Names, addresses and phone numbers of handlers
  - Names, addresses, and phone numbers for employers of handlers
  - Tasks that each handler is authorized and trained to perform
  - Date of PPE training for each handler
  - Applicable handler PPE including:
    - Long-sleeved shirts/long pants, shoes, socks
    - Chemical-resistant apron plus
    - Chemical-resistant footwear and socks
    - Protective eyewear (not goggles)
    - Chemical-resistant gloves
    - Air-purifying respirators
      - Respirator make, model, type, style, size, and cartridge/canister type
    - Other PPE
  - For handlers: Confirmation of receipt of Fumigant Safe Handling Information
  - For certified applicator(s) supervising the application: Completion date and location of the soil fumigant training program listed on the following EPA website http://www.epa.gov/~~pesticides/reregistration/soil-fumigants/~~ for the active ingredient(s) in this product fumigant training
  - For handlers designated to wear air-purifying respirators:
    - date of medical qualification to wear a respirator,
    - date of respirator training, and
    - date of fit-testing for the respirator
  - Unless ~~where~~ exempted in the *Protection of Handlers* section, verify that:
    - at minimum 1 handler has the appropriate respirators and cartridges/canisters during handler activities, and
    - the employer has confirmed that the appropriate respirator and cartridges/canisters are immediately available for each handler who will wear one
- Air monitoring plan
  - If sensory irritation is experienced, indicate whether operations will cease or operations will continue with use of an air-purifying respirator
  - For monitoring the breathing zone:
    - Representative handler tasks to be monitored
    - Monitoring equipment to be used, and
    - Timing of the monitoring
  - ~~Fumigant site monitoring:~~
    - Chemigation: Monitoring ~~equipment to be used~~ including drip applicat
    - ~~Drip application~~ monitoring ~~(Note to registrant: Do not add this section if label does not allow drip applications)~~
      - Record monitoring date(s) and time(s)
      - Name of person(s) monitoring
      - Record observations:
        - Is the equipment functioning properly,
        - Description of corrective action (if applicable), and
        - Other comments
- Good Agricultural Practices (GAPs)
  - Identify (e.g., list, attach applicable label section) applicable mandatory GAPs
- Pesticide Product Labels and Material Safety Data Sheets (MSDS)
  - Ensure that labels and MSDSs are on-site and readily available for employees to review.

Record-Keeping Procedures

- The owner of the application block as well as the certified applicator supervising the application must keep a signed copy of the site-specific FMP for 2 years from the date of application. For situations where an initial FMP is developed and certain elements do not change for multiple application blocks (e.g. applicator information, certified applicator, handlers, record-keeping procedures, emergency procedures) 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).

The certified applicator must make a copy of the FMP immediately available for viewing by handlers involved in the fumigation. The certified applicator or the owner 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. The certified applicator supervising the application must ensure the FMP is at the application block during all handler activities.

Within 30 days after the application is complete, the certified applicator supervising the application must complete a Post-Application Summary.

POST-APPLICATION SUMMARY

The Post-Application Summary must contain the following elements:

- Actual date and time of the application,
- Application rate,
- Size of application block
- Weather Conditions
  - Summary of the National Weather Service weather forecast during the application and the 48 hours after the application is complete including:
  - wind speed, and
  - air stagnation advisory (if applicable)
  - Forecast must be checked on the day of, but prior to the start of the application, and on a daily basis during the application if the time period from the start of the application until the application is complete is greater than 24 hours.
- Tarp damage and repair information (if applicable)
  - Date of tarp damage discovery,
  - Location and size of tarp damage,
  - Description of tarp/tarp seal/tarp equipment failure, and
  - Date and time of tarp repair completion.
- Tarp perforation/removal details (if applicable)
  - Date and time tarps were perforated,
  - Date and time tarps were removed, and
  - Record if tarps were perforated and/or removed early. Describe the conditions that caused early tarp perforation and/or removal
- 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, and

- Description of control measures or emergency procedures followed after complaint
- Description of incidents, equipment failure, or other emergency and emergency procedures followed (if applicable)
- Air monitoring results:
  - When sensory irritation experienced:
    - Date, time, location, and handler task/activity where irritation was observed and
    - Resulting action (e.g., implement emergency response plan, cease operations, continue operations with air-purifying respirators)
  - When using a direct read detection device:
    - Sample date(s), time(s), locations, and concentrations
    - Handler task/activity monitored (if applicable), and
    - Resulting action (e.g., cease operations, continue operations with air-purifying respirators).
- Fumigant Treated Area and Buffer Zone Signs
  - Dates of posting and removal
- Any deviations from the FMP (e.g., changes in emergency response actions, changes in handler information, changes in handlers responsible for completing emergency tasks, changes in communication between certified applicator, owner, and other handlers).

Record-Keeping Procedures

The owner of the application block as well as the certified applicator supervising the application must keep a signed copy of the Post-Application Summary for 2 years from the date of application).

GENERAL INSTRUCTIONS

Sectagon 42 is a water-soluble liquid. When applied to properly prepared soil, the liquid is converted into a gaseous fumigant. After a sufficient waiting period, the gas dissipates, leaving the soil ready for planting. Sectagon 42 is recommended for the suppression of weeds, plant parasitic nematodes, and soilborne fungi that cause reductions in the yield and quality of ornamental, food and fiber crops.

Sectagon 42 will suppress only those pests in the fumigation zone at the time of treatment. Recontamination may occur subsequent to the fumigant's dissipation from the soil.

Weeds and germinating weed seeds that are suppressed include Annual bluegrass, Bermuda grass, Chickweed, Dandelion, Ragweed, Henbit, Lambsquarter, Amaranthus sp. (Pigweed, Careless weed), Watergrass, Johnsongrass, Nutgrass, Wild morningglory, Purslane, Barnyardgrass, Crabgrass, Groundsel, Prickly lettuce, Pineappleweed, Nettleaf, Goosefoot, Nightshade, Shepherdspurse, Stinging nettle, Malva, London rocket, and Fiddleneck. The best weed suppression is obtained when Sectagon 42 is applied to weeds that are actively growing.

The soil-borne plant pathogenic fungi suppressed include species of Verticillium, Rhizoctonia, Pythium, Phytophthora, Sclerotinia.

The plant parasitic nematodes which Sectagon 42 suppresses include Root knot, Lesion, Dagger, Lance, Needle, Pin, Reniform, Stunt, Stubby root, Sting and Spiral.

Note: Sectagon 42 will only suppress nematodes that are in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that Sectagon 42 achieves at the time of application. In Oregon and Washington, Sectagon 42 will only suppress Miloidogyne Chitwoodi. Other pests suppressed include symphilids or garden centipedes.

TREATMENT GUIDELINES

For optimum results from soil fumigation with Sectagon 42 certain procedures should be observed at designated times in the treatment program. Described in this section are important guidelines for each of the four stages of the treatment process:

Planning a Sectagon 42 Application

Preparing a Field for Application

Applying Sectagon 42

Preparing for Planting after Application of Sectagon 42

Your sales representative will help you select the best treatment program for your particular needs.

PLANNING A SECTAGON 42 APPLICATION

Time of Application

Apply Sectagon 42 after harvest and 14 to 21 days before a new crop is planted. In some areas of North America, fall applications are preferred because the fumes dissipate over the winter, allowing planting to begin as soon as favorable springtime conditions arrive.

Application Rate

Apply 1 to 75 gallons of Sectagon 42 per treated acre depending on crop, target pest, and soil properties. Soil properties to consider when determining the application rate include the depth of soil to be treated, soil texture and percent organic matter.

Application in Tank Mix with Liquid Fertilizer

Sectagon 42 may be injected in a mixture with liquid fertilizers. Since the composition of liquid fertilizers vary considerably, the physical compatibility of each fertilizer/Sectagon 42 tank mix should be checked by using the following procedure:

Mix a small quantity of Sectagon 42 and liquid fertilizer in a glass container. Sectagon 42 and fertilizer should be mixed in the same ratio as they will be applied to the field (i.e., if 40 gallons of Sectagon 42 and 40 gallons of liquid fertilizer are to be applied per acre, then Sectagon 42 and fertilizer should be mixed in the jar in a 40:40 or 1:1 ratio). Agitate the liquids to attain a complete mixture.

If a uniform mix cannot be made, the mixture should not be used. If the mixture remains uniform for 30 minutes, the combination may be used. Should the mixture separate after 30 minutes, but readily remixes uniformly with agitation, the mixture can be used if adequate agitation is maintained in the tank.

DO NOT PLACE CAPS ON JAR, AS INCOMPATIBLE MIXES MAY EVOLVE HYDROGEN SULFIDE GAS.

USE PROMPTLY AFTER MIXING WITH WATER OR FERTILIZER. DO NOT ALLOW SOLUTION TO STAND.

Flush all equipment with water after each day's use. Disassemble valves and clean carefully.

Target Pest and Depth of Treatment

For suppression of weeds and fungi causing seed or seedling diseases, treatment of only the top 1 to 4 inches of soil may be required (see application specific requirements in the Good Agricultural Practices section of this label). For suppression of nematodes and fungi which occur throughout the rhizosphere, treatment to depths of greater than 4 inches may be required. For a given soil type, the required application rate will increase proportionately with the depth of treatment required.

For example, if 25 gallons of Sectagon 42 per acre is required to treat 4 inches, then 50 gallons of Sectagon 42 will be required to treat to a depth of 8 inches. Choose the appropriate application method to distribute Sectagon 42 evenly throughout the soil to the required depth.

Organic Matter in the Soil

Because of the absorbing effect of humus, soils with high levels of organic matter under the surface require higher than usual doses of Sectagon 42 with the maximum application rate being 75 gallons per acre. For example, muck soils require twice the amount of fumigant that would be used in mineral soils.

Soil Texture

Application rates will vary with the soil texture. For instance, clay soils require more Sectagon 42 than light sandy soil.

Soil Temperature During Treatment

At the time of fumigation, the soil temperature should be in the range of 35°F-90°F (1.6°-32°C).

Phytotoxicity

Sectagon 42 is phytotoxic. Protect valuable, non-target plants by stopping soil applications of Sectagon 42 at least 3 feet short of the drip line of trees, shrubs, and other desirable plants. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

APPLYING SECTAGON 42

Use of Diluted Sectagon 42

Do not store the diluted product. Use Sectagon 42 promptly after it has been mixed with water. In dilute solutions in water Sectagon 42 decomposes over a period of days. Although Sectagon 42 is stable in its concentrated form, it is unstable in acid dilutions.

CHEMIGATION–GENERAL PROCEDURES

When applying by chemigation methods the following precautions must be observed.

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, solid set, or hand move; flood (basin); furrow; border, or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

NOTE: Tessenderlo Kerley, Inc. does not encourage connection of chemigation systems to public water systems. The following information is provided for users who have evaluated all alternative application and water source options before choosing to make such a connection.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank measuring of at least twice the inside diameter of the fill pipe.

Do not apply when wind speed favors drift beyond the area intended for treatment.

GENERAL INSTRUCTIONS FOR SPRINKLER SYSTEMS

NOTICE: Do not operate irrigation systems without safety valves or other devices to prevent back siphoning of Sectagon 42 into water sources. Irrigation water treated with Sectagon 42 should be maintained on the treated area until the water is absorbed by the soil. The tank containing Sectagon 42 must be connected to the discharge side of the irrigation pump or other pressurized equipment attached to the irrigation line. Do not apply in irrigation systems that result in overlapping application of Sectagon 42. Do not apply when weather conditions favor drift from target areas.

PREPARING FOR PLANTING AFTER APPLICATION OF SECTAGON 42

Effect of Rain

If a Sectagon 42 application is rained on less than 24 hours after treatment, lack of suppression at and near the soil surface may result.

Recontamination

Precautions must be taken to prevent recontamination of treated soil with weed seeds, plant pathogenic fungi and plant parasitic nematodes. Use clean seeds and/or plants. Before farm equipment is driven into the treated area, it should be rinsed free of the untreated soil from other fields.

Interval Between Treatment and Planting

Because Sectagon 42 can be harmful to germinating and/or living plants, an appropriate interval must be observed between soil fumigation and planting. On well-drained soils which have a light to medium texture and which are not excessively wet or cold following application, planting can begin 14 to 21 days after treatment. If soils are heavy or especially high in organic matter, or if they remain wet and or cold (below 60°F or 15°C) following application, a minimum interval of 30 days should be observed.

Aeration before planting

Soils including soils high in clay or organic matter, should be allowed to aerate and dry thoroughly after treatment with Sectagon 42. During cold and/or wet weather, frequent shallow cultivation can aid the escape of Sectagon 42 from the soil.

Testing for Dissipation of Sectagon 42

After the waiting period has passed, if there are any questions about the complete escape of Sectagon 42 from the soil, transplant a seedling into the treated soil. If the plant develops normally without any signs of chemical injury, crop planting can begin.

USES, APPLICATION METHODS & RATES FIELD APPLICATION WHERE ENTIRE AREA IS BEING TREATED

POWER ROLL SEAL METHOD (NON-TARP)

Use a RO-TO-VATE & ROLL Applicator only. Contact your local agricultural extension service, distributor or the manufacturer for approved RO-TOVATE & ROLL Application specifications.

When to Treat: Apply Sectagon 42 2 to 6 weeks prior to planting, whenever soil type and conditions permit. For best results with annual crops, treat the soil each year. Do not use Sectagon 42 to treat any type of soil when it is cold and/or wet (when soil is colder than 35°F or contains more moisture than 80% ~~field~~ capacity).

Application: Use undiluted Sectagon 42 to the desired depth below the final soil surface. (Contact your dealer or the manufacturer for the specifications for suitable application equipment).

IMPORTANT SOIL TREATMENT PRECAUTIONS

Crops to be hilled: For crops that require soil movement (hilling) prior to or after planting, incorporate Sectagon 42 to a depth that will allow the tillage required to occur without penetrating below the depth of treatment (see application specific requirements in the Good Agricultural Practices section of this label).

Crops to be bedded: For crops to be bedded, care must be taken that exposed sides of raised beds are not cracked or open compared to the power rolled surface. If necessary, add power rollers of the required height or other sealing equipment to the ends of the bedding equipment to seal the sides.

Note: The use of Sectagon 42 for the suppression of weeds, weed seeds and shallow inhabiting soil fungi requires that NO SOIL CULTIVATION OCCUR FOLLOWING TREATMENT until time of planting.

This method of treating soil with Sectagon 42 will not be effective for the suppression of nematodes outside the treated zone. This method of Sectagon 42 application can be used in combination with other soil fumigants to suppress the nematodes persisting in the surface 1 to 6 inches of soil normally not suppressed with injected soil fumigants.

Zone of treatment will be limited by diameter of applicator. If pest is deeper than applicator can treat to, use a different method. For further information contact your local agricultural extension service or the manufacturer.

SOIL INJECTION

Use injectors (shanks, blades, fertilizer wheels, plows, etc.) to apply Sectagon 42 at the rate of 15 to 75 gallons per acre into well prepared soil. Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil.

Example: apply through injectors placed 4 inches below surface and 5 inches apart.

SPRINKLER SYSTEM

Use only those sprinkler systems which give large water droplets to prevent excess loss. Use 37.5 to 75 gallons Sectagon 42 per acre for suppression of nematodes and fungi at a depth of 24 inches. For suppression of weeds and fungi at a depth of 8 inches or less, use 15 to 75 gallons per acre. Inject the Sectagon 42 in enough water to reach to desired treatment depth. The product should be continuously metered into the irrigation system throughout the entire application period. Flush the system with only enough water to clear lines. If the soil surface dried quickly, reseal it with 15 minutes of water once a day for the next day or two.

To prevent runoff of treatment solution during sprinkler application, do not exceed the infiltration rate of the solution into the soil. Should runoff occur, isolate it from growing crops and water sources. Once collected, reapply it to the treated area. See use precautions in "CHEMIGATION" section.

CHECK OR FLOOD IRRIGATION

Meter Sectagon 42 at a steady rate into water during irrigation. Use 40 to 75 gallons of Sectagon 42 per acre, depending upon the kind of pest and depth desired, in 3 to 18 inches of water per acre. See use precautions in "CHEMIGATION" section.

DISC APPLIED METHOD

Spray Sectagon 42 immediately in front of disc. Use 15 to 75 gallons per acre. Follow immediately with a roller to smooth and compact the soil surface.

DRIP IRRIGATION

Sectagon 42 may be injected into drip irrigation systems prior to planting. The area must be calculated in accordance with the size of the band treated. Apply 40 gallons per broadcast acre in one acre inch of water (27,000 gallons). The resulting concentration is 700 ppm on a weight basis. (Example: if the emitters irrigate 10% of each acre then use 5 gallons Sectagon 42 in 2,700 gallons water). Inject continuously. Do not slug treat. See use precautions in "CHEMIGATION" section.

APPLICATION TO BED OR ROWS

POWER ROLL SEAL METHOD (NON-TARP)

Use a modified RO-TO-VATE & ROLL Applicator only. Contact your local agricultural extension service, distributor or the manufacturer for approved RO-TO-VATE & ROLL Applicator specifications.

When to treat: Apply Sectagon 42 2 to 6 weeks prior to planting whenever soil type and conditions permit. For best results with annual crops, treat the soil each year. Do not use Sectagon 42 to treat any type of soil when it is cold and/or wet (when soil is colder than 35°F or contains more moisture than 80% field capacity).

Application: Use undiluted Sectagon 42 Apply with suitable application equipment that will ensure incorporation of Sectagon 42 to the desired depth below the final soil surface. (Contact your dealer or the manufacturer for the specifications for suitable application equipment).

IMPORTANT SOIL TREATMENT PRECAUTIONS

Crops to be hilled: For crops that require soil movement (hilling) prior to or after planting, incorporate Sectagon 42 to a depth that will allow the tillage required to occur without penetrating below the depth of treatment (see application specific requirements in the Good Agricultural Practices section of this label).

Crops to be bedded: For crops to be bedded, care must be taken that exposed sides of raised beds are not cracked or open compared to the power rolled surface. If necessary, add power rollers of the required height or other sealing equipment to the ends of the bedding equipment to seal the sides.

Note: The use of Sectagon 42 for the suppression of weeds, weed seeds and shallow inhabiting soil fungi requires that NO SOIL CULTIVATION OCCUR FOLLOWING TREATMENT until time of planting.

This method of treating soil with Sectagon 42 will not be effective for the suppression of nematodes outside the treated zone. This method of Sectagon 42 application can be used in combination with other soil fumigants to suppress the nematodes persisting on the surface 1 to 6 inches of soil normally not suppressed with injected soil fumigants.

Zone of treatment will be limited by diameter of applicator. If pest is deeper than applicator can treat to, use a different method. For further information contact your local agricultural extension service or the manufacturer.

SOIL INJECTION

Sectagon 42 at the rate of 50 to 75 gallons per treated acre (1 to 1.5 pints per 100 sq. ft.), may be injected into preformed plant beds following the directions given above under soil injection. If a wider treated band is desired, space 2 or more injectors (shanks, blades, fertilizer wheels, etc.) at desired intervals to cover the desired treating width. Seal immediately.

If Sectagon 42 is injected into established plant beds to terminate growth of a previous crop, and to fumigate the bed in preparation for planting a subsequent crop, the terminated crop should not be used for any food or feed purposes after Sectagon 42 has been applied.

SOIL COVERING METHOD (BED-OVER METHOD)

Sectagon 42 may be sprayed or dripped onto the soil immediately ahead of bed-shaping equipment. Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil. The recommended rate of Sectagon 42 is 40 to 75 gallons per acre of treated soil, approximately equivalent to 0.5 to 1.5 pints per 100 linear ft. of 12-inch wide row.

DRIP IRRIGATION

During pre-irrigation, check drip tape for uniform distribution and repair if necessary. Apply 15 to 75 gallons Sectagon 42 per treated acre (0.25 to 1.5 pints per 100 sq. ft. of treated soil) using enough water to thoroughly wet entire desired treatment zone. During the entire irrigation period, inject Sectagon 42 continuously into drip line as close as possible to treatment area. Two or more lines per bed may be needed to ensure full coverage. Application must be continuously supervised. Weed suppression will not be satisfactory if too much water is applied (if 80% field capacity is exceeded). An adequate concentration of Sectagon 42 must be present at the time of weed seed germination in order to be effective. See use precautions in "CHEMIGATION" section.

DRENCH METHOD

Sectagon 42 may be applied to finished beds in enough water to soak at least 2 inches deep for suppression of shallow seeded weeds. To avoid contamination by untreated soil, do not disturb the treated area. Apply 15 to 75 gallons of Sectagon 42 per treated acre.

ADDITIONAL RECOMMENDATIONS

TOBACCO PLANT BEDS

Fall applications are recommended wherever possible. Read and follow DIRECTIONS FOR USE carefully. Treatment in the South should generally be made before November 30.

DRENCH METHOD: Apply 2 gallons Sectagon 42 in 150 to 200 gallons of water per 100 sq. yd. Application may be made with sprinklers, sprayers with nozzles or any suitable equipment. Follow directions given above for seed bed treatment.

SYMPHYLID SUPPRESSION

Soil should be in good seed bed condition to a depth of 8 to 10 inches. Maintain adequate moisture during spring season. Treat during July-August when symphylids are in the upper soil surface. Apply 15 gallons Sectagon 42 per acre using blade or chisel injector. Inject below level of symphylid concentration, usually 6 to 8 inches. Pack soil immediately after application.

NOTE: Sectagon 42 will only suppress nematodes which are in the fumigated zone at the time of treatment.

POTATOES

For suppression of potato pests such as Root knot nematodes, Weed seeds, Verticullum dahlias (Early maturity disease).

Apply 30 to 75 gallons Sectagon 42 per acre using injectors (shanks, blades, fertilizer wheels, plows, etc.) Follow immediately with a bedshaper, roller press wheel or similar device or cover with an adequate amount of soil to seal the fumigant into the soil.

Sprinkler system preplant application – Use 37.5 to 75 gallons of Sectagon 42 per acre. Inject into a sprinkler system that can deliver an even water distribution for the area being treated. Inject all of the Sectagon 42 needed for the area covered and apply in enough water to reach the desired treatment depth. Soil temperature should be in the range of 35°F to 90°F in the treatment zone. Soil moisture immediately prior to treatment must be 60 to 80% of field capacity down to 24" level. Soil condition must facilitate even moisture penetration without runoff. Do not apply when plants are present. See use precautions in "CHEMIGATION" section.

NOTE: Sectagon 42 will suppress Root knot nematodes in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that Sectagon 42 achieves at the time of application.

If high numbers or deep nematodes are identified, anticipate nematodes to build up throughout the growing season. Some damage will occur unless additional action is taken.

Sectagon 42 has no soil residual and reinfestation of a field can occur from numerous sources such as deep nematode populations, seed pieces, irrigation water, equipment contamination and blowing wind.

EARLY MATURITY DISEASES OF POTATOES IN OREGON

Apply 30 gallons Sectagon 42 per acre using injectors (shanks, blades, fertilizer wheels, plows, etc.) Follow immediately with a bedshaper, roller press wheel or similar device or cover with an adequate amount of soil to seal the fumigant into the soil.

NOTE: Sectagon 42 will suppress Root knot nematodes in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that Sectagon 42 achieves at the time of application.

MINT

Verticilium wilt control.

When infestation is limited to small spots in a field, spread can be reduced by treating the soil with 75 gallons Sectagon 42 per treated acre (1½ pints per 100 sq. ft.) using injector blade or thin shank injector rig with injectors spaced at intervals to cover the desired treating width.

WHEAT AND BARLEY

For suppression of certain root diseases caused by Early season soil fungi – before applying Sectagon 42 cultivate the area to be treated to break up clods. Apply 2 to 7.5 gallons per treated acre 14 to 21 days before planting. Sectagon 42 may be diluted with water or non-acidic liquid fertilizer immediately before applying. Inject Sectagon 42 to a depth of 5 to 8 inches into moist soil. Space injector shanks at intervals to cover the desired treating width.

Do not mix Sectagon 42 with acidic fertilizer or other acidic solutions. Use only in areas which receive 15 or more inches of rainfall per year.

PEANUTS

Cylindrocladlium Black Rot (CBR) Suppression:

Apply Sectagon 42 at the following rates:

CBR-resistant cultivar (NC8C): 7.5 gallons per treated acre or 4 pints per 1,000 feet of treated row CBR-susceptible peanut cultivars (Florigant, GK-3, NC-5 Keel 29): 15 gallons per treated acre or 8 pints per 1,000 feet of treated row.

CBR-highly susceptible cultivars (VA 81B, NC7): use of Sectagon 42 is not recommended.

Soil Preparation: Before applying Sectagon 42 residue from the previous crop should be decomposed (enhanced by fall discing) and plowed under in the spring with moldboard plow. Soil incorporated preplant herbicides must be applied before application of Sectagon 42.

Application: Apply Sectagon 42 with a gravity flow regulator through chisel-type or counter-type applicators. Center each applicator, one per row, in front of a bedshaper to mark the location of chemical deposition. Sectagon 42 should be deposited 6 to 8 inches below the soil surface of beds. Bed and applicator spacing should coincide with row spacing at planting. Soil temperatures must be in the range of 60°F to 90°F at injection depth before application.

Tillage and Planting after Application: Do not mix treated soil with untreated soil by tillage or other cultural practices. Plant peanuts in the center of treated beds no earlier than 14 days following application of Sectagon 42. An at-planting nematicide treatment will be necessary in fields with heavy infestation of Root knot, Ring and/or String nematode.

FOR SUPPRESSION OF SPECIFIC ORCHARD DISEASES (SUCH AS SPECIFIC APPLE REPLANT DISEASE)

Use 62 to 75 gallons of Sectagon 42 per treated acre. It is best to have the replant site prepared to a planting consistency which includes irrigating to 70% field capacity before Sectagon 42 application. Treatment can be made in the Fall or Spring before planting but Fall application is the preferred timing. Spring application can be riskier because the interval between treatment and planting is critical; see CAUTIONS listed below. Do not harvest fruit within one (1) year of application.

There are three application techniques that may be used: 1) Entire orchard site, 2) Individual tree row site, and 3) Individual tree plant site.

Entire orchard site: Inject the desired amount of Sectagon 42 into a sprinkler system to treat the entire replant site. Figure the irrigation schedule required to cover the desired treatment depth. Start the irrigation system and inject the Sectagon 42 one-third to one-half way through the cycle making sure to leave enough time at the end of the cycle to seal the application with plain water.

Individual tree row site: Two methods of application may be used to apply Sectagon 42 to individual tree row sites: Method One is to apply Sectagon 42 through a portable irrigation system such as a sprinkler or drip system; Method Two is to apply the desired amount of Sectagon 42 through a weed sprayer while the irrigation system is running. For either method and after identifying the position of the future tree row site, apply Sectagon 42 one-third to one-half way through the required irrigation cycle leaving enough time at the end of the cycle to apply plain water, sealing the Sectagon 42 in the ground.

Individual tree plant site: Use 18 to 24 fluid ounces of Sectagon 42 per 100 gallons of water. Use 16 gallons of this solution in a 4 by 4 foot planting hole. Water and product amount adjustments can be made to accommodate different size planting holes to ensure product movement to desired depth. Replace dirt removed.

TARPING: Tarping of replant sites is required when near (1/2 mile) to populated areas, such as schools, hospitals, commercial or office buildings, factories, residential areas, etc. Tarping is not required if treatment is farther than 1/2 mile from such populated areas.

CAUTIONS: INTERVAL BETWEEN TREATMENT AND PLANTING

Because Sectagon 42 is harmful to living plants, an appropriate interval must be observed between Sectagon 42 application and planting. On well-drained soils which have a light to medium texture and are not excessively wet or cold following application, planting can begin 21 to 30 days after treatment. If soils are heavy or especially high in organic matter or if they remain wet and/or cold (below 60°F) following application, a minimum interval of 30 to 45 days should be observed. Where the dosage approaches the 75 gallons per acre rate, wait at least 60 days.

HARVEST OF ANY FRUIT WITHIN ONE (1) YEAR OF TREATMENT IS PROHIBITED.

Conditions of Sale and Warranty

CONDITIONS OF SALE – LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES

The directions on this label are believed to be reliable and must be followed carefully. Insufficient control of pests and/or injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions, or the failure to follow the label directions, or good application practices, all of which are beyond the control of Tessenderlo Kerley, Inc., or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. Tessenderlo Kerley, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use, subject to the factors noted above which are beyond the control of Tessenderlo Kerley, Inc. Except as warranted by this label, Tessenderlo Kerley, Inc. makes no other warranties or representations of any kind, express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose. To the extent consistent with applicable law, the exclusive remedy against Tessenderlo Kerley, Inc. for any cause of action relating to the handling or use of this product is a claim of damage, and in no event shall damages or any other recovery of any kind against Tessenderlo Kerley, Inc. exceed the price of the product which causes the alleged loss, damage, injury, or other claim. To the extent allowed by applicable law, Tessenderlo Kerley, Inc. shall not be liable and any and all claims against Tessenderlo Kerley, Inc. are waived, for special, indirect, incidental or consequential damages or expense of any nature, including, but not limited to, loss of profits or income, whether or not based on the negligence of Tessenderlo Kerley, Inc., breach of warranty, strict liability in tort, or any other cause of action. Tessenderlo Kerley, Inc. and the seller offer this product, and the buyer and users accept it, subject to the foregoing conditions of sale and limitations of warranty, liability and remedies.

NOTICE TO BUYER: Purchase of this material does not confer any rights under patents of countries outside of the United States.
Sectagon and NovaSource are registered trademarks of Tessenderlo Kerley, Inc.

Manufactured for:
Tessenderlo Kerley, Inc.
2255 N. 44th Street, Suite 300
Phoenix, AZ 85008 USA
1-800-525-2803

Tessenderlo
KERLEY

November 9, 2010

Shaja B. Joyner
Document Processing Desk (**FNL LBL**)
Office of Pesticide Programs (7504P)
U.S. Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 S. Crystal Drive
Arlington, VA 22202-4501

RE: Tessenderlo Kerley, Inc. – Submission of Sectagon-42 (EPA Reg. No. 61842-6) final printed label

Dear Ms. Joyner,

Please find enclosed final labeling for Sectagon-42 which includes changes requested in Agency comments made in the May 13, 2010 letter.

In support of this submission, please find enclosed:

- Completed Application for Registration (EPA Form 8570-1)
- One copy of Sectagon-42 final print label

Don't hesitate to contact me by phone (602) 889-8397, fax (602) 889-8430, or e-mail bthomassen@tkinet.com, should you have any questions or concerns regarding this submission. Thank you for your assistance.

Sincerely,

Brian Thomassen
Regulatory Affairs Manager
Tessenderlo Kerley, Inc.

Enclosures:
Cc: D. Kominski

TESSENDERLO KERLEY, INC., member of TESSENDERLO GROUP

P.O. Box 15627, Phoenix, Arizona 85060-5627
2255 North 44th Street, Suite 300, Phoenix, Arizona 85008-3279
Tel. (602) 889-8300, Fax (602) 889-8430

TESSENDERLO GROUP

Please read instructions on reverse before completing form. Form Approved. OMB No. 2070-0060

Print Form

EPA

United States
Environmental Protection Agency
Washington, DC 20460

[ ] Registration
[ ] Amendment
[X] Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 61842-6	2. EPA Product Manager S. Joyner	3. Proposed Classification [ ] None [X] Restricted
4. Company/Product (Name) Sectagon-42	PM# 20	
5. Name and Address of Applicant *(Include ZIP Code)* Tessenderlo Kerley Inc 2255 N. 44th Street, Suite 300 Phoenix, AZ 85008 [ ] *Check if this is a new address*	6. **Expedited Review.** In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

[ ] Amendment - Explain below.
[ ] Resubmission in response to Agency letter dated _____
[ ] Notification - Explain below.
[X] Final printed labels in response to Agency letter dated May 13, 2010
[ ] "Me Too" Application.
[ ] Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of final printed labeling per Agency letter from May 13, 2010.

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes* [X] No	[ ] Yes [X] No	[ ] Yes [X] No	[X] Metal [X] Plastic [ ] Glass [ ] Paper [ ] Other (Specify) _____
* *Certification must be submitted*	If "Yes" Unit Packaging wgt. / No. per container	If "Yes" Package wgt / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
[X] Label [ ] Container	Bulk	[X] On Label [ ] On Labeling accompanying product

6. Manner in Which Label is Affixed to Product [ ] Lithograph [ ] Paper glued [ ] Stenciled [X] Other shipping papers

Section - IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Brian Thomassen	Regulatory Affairs	602-889-8397

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received (Stamped)

2. Signature	3. Title
	Regulatory Affairs
4. Typed Name	**5. Date**
Brian Thomassen	11/9/2010

EPA Form 8570-1 (Rev. 8-94) Previous editions are obsolete. White - EPA File Copy (original) Yellow - Applicant Copy

NovaSource®
Tessenderlo Group

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.

Sectagon-42®

Agricultural Fumigant

FUMIGANT SOLUTION FOR SPECIFIC CROPS AS LISTED IN THIS LABEL
For suppression of: Nematodes, Fungi, Bacteria, Weeds, Weed seeds and Volunteer seeds.

42.2% SODIUM METHYLDITHIOCARBAMATE

ACTIVE INGREDIENT:
Sodium methyldithiocarbamate (anhydrous)] 42.2%
OTHER INGREDIENTS: 57.8%
TOTAL: 100.0%
Contains 4.22 lbs. active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

DANGER PELIGRO

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

FIRST AID	
If 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 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 treatment advice.
If swallowed:	Call 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 or doctor. Do not give anything by mouth to an unconscious person.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-866-374-1975 for emergency medical treatment information.	
NOTE TO PHYSICIAN	
Probable mucousal damage may contraindicate the use of gastric lavage.	

EPA Reg. No. 61842-6 **EPA Est. No. 61842-ID-001** **EPA Est. No. 61842-WA-002**

Manufactured by:
Tessenderlo Kerley, Inc.
2255 N. 44th Street, Suite 300
Phoenix, AZ 85008 USA
1-800-525-2803

NSEPA12012010

Net Contents:

TESSENDERLO GROUP™

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER

- Corrosive: causes skin damage. May be fatal if absorbed through the skin. Do not get on skin or clothing.
- Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals.
- Harmful if swallowed.
- Harmful if inhaled. Irritating to eyes, nose, and throat. Avoid breathing vapor or spray mist.
- Irritating to eyes. Do not get in eyes.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are barrier laminate or viton > 14 mils. For more options, follow the instructions for category H on an EPA chemical resistance category selection chart.

Handlers applying via weed sprayer while irrigation sprinklers are running or handlers who may be exposed to liquid spray while repairing a malfunctioning chemigation system or shutting off equipment must wear:

- chemical-resistant coveralls over long-sleeve shirt and long pants,
- chemical-resistant gloves,
- chemical-resistant footwear plus socks,
- chemical-resistant headgear,
- protective eyewear, and
- respirator of the type specified in the respiratory protection section in the PPE requirements on this label.

Handlers wearing chemical-resistant attire are limited to 30 minutes of exposure in any 60 minute period to prevent heat illness, and, as required by the Worker Protection Standard for Agricultural Pesticides, employers of these handlers must take any necessary steps to avoid heat illness.

Except as required above, handlers transferring or loading liquid formulations, handlers operating motorized ground equipment with open cabs, handlers repairing or inactivating irrigation or chemigation equipment during application, and handlers cleaning up spills or equipment, must wear:

- coveralls over long-sleeve shirt and long pants,
- chemical resistant gloves,
- chemical resistant footwear plus socks,
- chemical-resistant apron if transferring or loading the fumigant or cleaning up spills or equipment,
- protective eyewear, and
- respirator of the type specified in the PPE requirements for respiratory protection section in the PPE requirements on this label if triggered.

All other handlers including handlers operating motorized ground equipment with closed cabs (except for fumigant handlers who set up and calibrate chemigation and irrigation equipment and start the application from inside the application block) as stated in this labeling must wear:

- long-sleeve shirt and long pants,
- shoes plus socks, and
- respirator of the type specified in the eye and respiratory protection section in the PPE requirements on this label if triggered.

All handlers who set-up and calibrate chemigation and irrigation equipment and start the application from inside the application block must wear:

- long-sleeve shirt and long pants,
- shoes plus socks,
- protective eyewear, and
- respirator of the type specified in the respiratory protection section in the PPE requirements on this label if triggered.

PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR RESPIRATORY PROTECTION

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 with any N, R, P or HE prefilter 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.

DO NOT transport contaminated clothing inside a closed vehicle unless stored in a sealed container. Wash or dispose as specified.

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 mammals, birds, aquatic invertebrates and fish. 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 wash waters or rinsate.

Metam-sodium has certain properties and characteristics in common with chemicals that have been detected in groundwater (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. Apply this product only as specified on this label.

USE PRECAUTIONS

Keep off desirable lawns and plants. Do not apply within 3 feet of the drip line of desirable plants, shrubs or trees. Do not use in confined areas without adequate ventilation OR where fumes may enter nearby dwellings. Do not use in greenhouses. Keep container tightly closed when not in use. Do not store near feed or food.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in a cool, dry place, keep container closed when not in use. Do not store below 0° F. Product crystallizes at lower temperatures. Warm or store at higher temperatures and mix to redissolve crystals and assure uniformity before use.

Do not stack more than three drums high. Leaking or damaged drums should be placed in overpack drums for disposal. Spills should be absorbed in sawdust or sand and disposed of in a sanitary landfill. Keep container closed when not in use.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instruction, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: [NON-REFILLABLE CONTAINERS] Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip

it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Then offer for recycling if available 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.

[REFILLABLE CONTAINERS]
Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available 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.

NOTE OF WARNING: CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER!

DIRECTIONS FOR USE

For suppression of: Nematodes, Fungi, Bacteria, Weeds, Weed seeds and Volunteer seeds.

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Use in greenhouses is prohibited. Application with handheld equipment is prohibited.

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.

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 or, for center pivot applications which occur over many days, the total acres of a field treated) 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 (NOTE: persons installing, perforating, removing, repairing, and monitoring tarps are considered handlers for the durations listed below). 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 (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, operating or removing irrigation equipment in the 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 tarps perforation is complete if they will not be removed within 14 days after application.

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

- Performing any handling tasks as defined by the Worker Protection Standard
- In addition to the above, persons outside the perimeter of the application block who visually monitor application equipment to ensure proper functioning and monitor fumigant air concentration in accordance with the fumigant site monitoring requirement must also be trained and equipped as handlers in accordance with the requirements in the Worker Protection Standard (40 CFR Part 170).

Do not apply when wind speed favors drift beyond the area intended for treatment.

PROTECTION FOR HANDLERS

For all applications except water run: 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 all water-run applications (e.g., sprinkler/chemigation, wheel line, center pivot, lateral move, drip, flood, etc.), the certified applicator must be at the fumigation site in the line of sight of the application to start the application including set-up, calibration, and initiation of the application. The certified applicator may leave the site but must return at least every two hours to visually inspect the equipment to ensure proper functioning and must directly supervise all Worker Protection Standard trained handlers on-site until the fumigation has stopped being delivered/dispersed into the soil. Worker Protection Standard-trained handlers may perform the monitoring functions in place of the certified applicator but must be under the supervision of the certified applicator and able to communicate with the certified applicator at all times during monitoring activities via cell phone or other means. The results of monitoring activities must be captured in the Fumigant Management Plant (FMP).

For 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 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 in the past twelve months. Fumigant Safe Handling information will be provided where this product is purchased or at www.epa.gov/fumiganttraining.

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.

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.

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

The fumigation handler employer must confirm and document in the FMP 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.

Cartridges or canisters must be replaced when odor or irritation from this product becomes apparent, if the measured concentration of MITC is greater than 6000 ppb, or after 8 hours of use, whichever occurs first.

RESPIRATOR FIT TESTING, MEDICAL QUALIFICATION, AND TRAINING

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 these requirements.

RESPIRATORY PROTECTION AND STOP WORK TRIGGERS

The following procedures must be followed to determine whether an air-purifying respirator is required or if operations must cease for any person performing a handling task as defined 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 an 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.
- During the collection of air samples, an air-purifying respirator must be worn by the handler taking the air samples.
- 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.
- When breathing zone samples are required, they must be taken outside respiratory protection equipment and within a ten inch radius of handler's nose and mouth.
- If at any time: (1) a handler experiences any sensory irritation when wearing an air-purifying respirator, or (2) an air sample is greater than or equal to 6,000 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 respiratory protection, 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 respirator must be worn by the handler taking the air samples. Samples must be taken where the irritation is experienced.
- Work activities can resume if all 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 6,000 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.

TARP PERFORATION AND/OR REMOVAL

IMPORTANT: Persons perforating, repairing, removing, and/or monitoring tarps are defined, within certain time limitations, as handlers (see definition of fumigant handlers 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 coulter 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.

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 agriculture workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. For entry-restricted period and notification requirements, see the *Entry Restricted Period* section of this labeling. The requirements in this box only apply touses of this product that are covered by the Worker Protection Standard (WPS).

For entry restricted period and notification requirements, see the *Entry Restricted Period* section of this labeling.

ENTRY-RESTRICTED PERIOD

Entry (including early entry that would otherwise be permitted under the Worker Protection Standard) 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 (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), or
- 48 hours after tarps perforation is complete if they will not be removed for at least 14 days following application, or
- Tarp removal is completed if tarps are both perforated and removed less than 14 days after application.

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

NOTIFICATION REQUIREMENT

Notify workers of the application by warning them orally and by posting Fumigant Treated Area signs.

The signs must bear the skull and crossbones symbol and state:

- "DANGER/PELIGRO,"
- "Area under fumigation, DO NOT ENTER/NO ENTRE,"
- Metam Sodium fumigation in Use."
- he date and time of fumigation,
- he date and time entry restricted period is lifted,
- "Sectagon 42", and
- name, address, and telephone number of the certified applicator in charge of the fumigation.

Post the Fumigant Treated Area sign instead of the Worker Protection Standard sign for this application but follow all Worker Protection Standard 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 field or portion of a field treated with a fumigant in any 24-hour period or, for center pivot applications with occur over many days, the total acres of a field treated and not separated by a 12 hour interruption).

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.

Shank Applications

Wind Speed

- 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.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
- 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.
- Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov or by contacting your local National Weather Service Forcasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions, Injection Depth, and Soil Sealing

- Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant application. The soil must be tilled, at a minimum to the depth of the treatment zone.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

The injection point for bedded and broadcast applications shall be a minimum of 3 inches from the final soil/air interface. Chisel traces must be eliminated following an application and the soil surface must be sealed immediately after application using one of the following methods:

- Compaction with a bed-shaper, roller, press wheel or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a ½-inch of water beginning immediately after application of a set and completing the water treatment within four hours, OR
- Covering treated area with a tarp.

Tarps

- When tarps are used for emission control, tarps must be installed immediately after application.
- When tarps are used, a written tarp plan must be developed and included in the FMP that includes:
  - Schedule and procedures for checking tarps for damage, tears, and other problems,
  - Plans for determining when and how repairs to tarp will be made, and by whom,
  - Minimum time following injection that tarp will be repaired,
  - Minimum size of damage that will be repaired,
  - Other factors used to determine when tarp repair will be conducted,
  - Schedule, equipment and methods used to cut tarp,
  - Aeration plans and procedures following cutting and/or slitting prior to tarp removal or planting, and
  - Schedule, equipment, and procedures for tarp removal.

Soil Temperature

- At the beginning of the application, the maximum soil temperature at the injection depth is 90 degrees F.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of soil capacity (field capacity) immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed field capacity to form a bed (e.g., certain regions in Florida), soil capacity (field capacity) may exceed the 80% allocated above.
- If appropriate measuring equipment is not used to determine whether the soil moisture

in the top six inches of soil is between 60% to 80% of soil capacity (field capacity) immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity (field capacity) requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.

- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

APPLICATION AND EQUIPMENT CONSIDERATIONS

- Do not apply or allow fumigant to drain or drip onto the soil surface. Injectors must be placed below the soil surface before product flow begins. For each injection line either have a check valve located as close as possible to the final injection point, or drain/purge the line of any remaining fumigant prior to lifting injection shanks from the ground. Do not lift injection shanks from the soil until the shut-off valve has been closed and the fumigant has been depressurized (passively drained) or purged (actively forced out via air compressor) from the system.
- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.
- Sight gauges and pressure gauges must be working.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor pilot during application to prevent backflow of the fumigant into the pressurizing cylinder.
- All rigs must include a flow meter or a flow monitoring device.
- All rigs must have a constant pressure system with orifice plates to insure the proper amount of fumigant is applied.
- Valves, vacuum relief valves, and low pressure drains must be in place, operational, and leak free.
- Interlocking controls must be installed and functioning.
- Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

Spray Blade Applications (includes bed-top blade and soil cap applications)

Wind Speed

- 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.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
- 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.
- Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions, Injection Depth, and Soil Sealing

- Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant application. The soil must be tilled, at a minimum to the depth of the treatment zone.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Apply the product on the soil immediately ahead of the bed-shaping equipment. The soil surface must be compacted immediately after application using one of the following methods:

- Compaction with a bed-shaper, roller, press wheel or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR

- Applying a minimum of a ½-inch of water beginning immediately after application of a set and completing the water treatment within four hours, OR
- Covering treated area with a tarp.

Tarps

- When tarps are used for emission control, tarps must be installed immediately after application.
- When tarps are used, a written tarp plan must be developed and included in the FMP that includes:
  - Schedule and procedures for checking tarps for damage, tears, and other problems,
  - Plans for determining when and how repairs to tarp will be made, and by whom,
  - Minimum time following injection that tarp will be repaired,
  - Minimum size of damage that will be repaired,
  - Other factors used to determine when tarp repair will be conducted,
  - Schedule, equipment and methods used to cut tarp,
  - Aeration plans and procedures following cutting and /or slitting prior to tarp removal or planting, and
  - Schedule, equipment, and procedures for tarp removal.

Soil Temperature

- At the beginning of the application, the maximum soil temperature at the injection depth is 90 degrees F.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

- The soil moisturing in the top six inches of soil must be between 60% to 80% of soil capacity (field capacity) immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed field capacity to form a bed (e.g., certain regions in Florida), soil capacity (field capacity) may exceed the 80% allocated above.
- If appropriate measure equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% of soil capacity (field capacity) immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity (field capacity) requirement is met:

  coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

- Do not apply or allow fumigant to drain or drip onto the soil surface
- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.
- Sight gauges and pressure gauges must be working.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor pilot during application to prevent backflow of the fumigant into the pressurizing cylinder.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

Rotary Tiller Applications

Wind Speed

- 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.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
- 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.
- Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions, Injection Depth, and Soil Sealing

- Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant

application. The soil must be tilled, at a minimum to the depth of the treatment zone.

- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Apply the product on the soil immediately ahead of the tiller. The soil surface must be compacted immediately after application using one of the following methods:

- Compaction with a bed-shaper, roller, press wheel or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a ½-inch of water beginning immediately after application of a set and completing the water treatment within four hours, OR
- Covering treated area with a tarp.

Tarps

- When tarps are used for emission control, tarps must be installed immediately after application.
- When tarps are used, a written tarp plan must be developed and included in the FMP that includes:
  - Schedule and procedures for checking tarps for damage, tears, and other problems,
  - Plans for determining when and how repairs to tarp will be made, and by whom,
  - Minimum time following injection that tarp will be repaired,
  - Minimum size of damage that will be repaired,
  - Other factors used to determine when tarp repair will be conducted,
  - Schedule, equipment and methods used to cut tarp,
  - Aeration plans and procedures following cutting and /or slitting prior to tarp removal or planting, and
  - Schedule, equipment, and procedures for tarp removal.

Soil Temperature

- At the beginning of the application, the maximum soil temperature at the injection depth is 90 degrees F.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of soil capacity (field capacity) immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed field capacity to form a bed (e.g., certain regions in Florida), soil capacity (field capacity) may exceed the 80% allocated above.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% of soil capacity (field capacity) immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity (field capacity) requirement is met:

  coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

- Do not apply or allow fumigant to drain or drip onto the soil surface.
- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.
- Sight gauges and pressure gauges must be working.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor pilot during application to prevent backflow of the fumigant into the pressurizing cylinder.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

Center Pivot Applications

Wind Speed

- For sprinkler or center pivot applications: 1) not using a solid stream type nozzle, OR 2) having a release height or spray height greater than 4 feet, OR 3) having 30 lbs or greater PSI at the sprinkler head, wind speed at the application site *must* be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.
- For sprinkler or center pivot applications using 1) solid stream, AND 2) having release height and spray height less than 4 feet, AND 3) having 29 lbs. or less PSI at the sprinkler head, wind speed at the application site *must* be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 25 mph.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions*

section) and whether fumigation should proceed.

- 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.
- Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, tillage to fracture these layers must occur. The soil must be tilled before or during the application, at a minimum to the depth of the intended treatment zone.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Except when applying over cover crops as set forth in the General Instructions for Sprinkler System, crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of soil capacity (field capacity) immediately prior to the application.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% of soil capacity (field capacity) immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity (field capacity) requirement is met:

  coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Flushing Irrigation Lines

- Do not allow fumigant to remain in the irrigation system after the application is complete. After application of the fumigant, flush the injection and irrigation system with untreated water. The flush time must be adequate to purge the fumigant from the injection and irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Use only tanks constructed with materials approved for handling metam. Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have proper pesticide labels on them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Solid Set Sprinkler Applications

Wind Speed

- Wind speed at the application site *must* be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
- 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.
- Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, tillage to fracture these layers must occur. The soil must be tilled prior to the application, at a minimum to the depth of the treatment zone.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Except when applying over cover crops as set forth in the General Instructions for Sprinkler Systems, crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of soil capacity (field capacity) immediately prior to the application.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% of soil capacity (field capacity) immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity (field capacity) requirement is met:

  coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Flushing Irrigation Lines

- Do not allow fumigant to remain in the irrigation system after the application is complete. After application of the fumigant, flush the injection and irrigation system with untreated water. The flush time must be adequate to purge the fumigant from the injection and irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Use only tanks constructed with materials approved for handling metam. Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have proper pesticide labels on them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Drench Applications

Wind Speed

- Wind speed at the application site *must* be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
- 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.
- Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, tillage to fracture these layers must occur. The soil must be tilled prior to the application, at a minimum to the depth of the treatment zone.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of soil capacity (field capacity) immediately prior to the application.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% of soil capacity (field capacity) immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity (field capacity) requirement is met:

  coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.
- Applications must be followed immediately with .20 to .50 inches of water through solid set sprinklers.
- A minimum of two or more water seals must be applied; one water seal on the first evening of the application and the second on the second evening of the day after application.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Use only tanks constructed with materials approved for handling metam. Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have proper pesticide labels on them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- Each nozzle must be equipped with a flow monitor, e.g., mechanical electronic, or Red-ball type monitor.
- To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
- Nozzles and metering devices are of correct size and are sealed and unobstructed.
- The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will

stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Drip Applications

Wind Speed

- 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.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
- 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.
- Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, tillage to fracture these layers must occur. The soil must be tilled prior to the application, at a minimum to the depth of the treatment zone.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of soil capacity (field capacity) immediately prior to the application, subject to the exception below.
- **EXCEPTION:** In areas where soil moisture must exceed field capacity to form a bed (e.g., certain regions in Florida), soil capacity (field capacity) may exceed the 80% allocated above.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% of soil capacity (field capacity) immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity (field capacity) requirement is met:

  coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

  fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

  For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.
- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Tarps

- When tarps are used for emission control in drip irrigation the tarps must be installed immediately after application.
- When tarps are used, a written tarp plan must be developed and included in the FMP that that includes:
  - Schedule and procedures for checking tarps for damage, tears, and other problems,
  - Plans for determining when and how repairs to tarp will be made, and by whom,
  - Minimum time following injection that tarp will be repaired,
  - Minimum size of damage that will be repaired,
  - Other factors used to determine when tarp repair will be conducted,
  - Schedule, equipment and methods used to cut tarp,
  - Aeration plans and procedures following cutting and/or slitting prior to tarp removal or planting, and
  - Schedule, equipment, and procedures for tarp removal.

Flushing Drip Irrigation Lines

- After application of the fumigant, continue to irrigate the area with water to flush the injection and irrigation system with untreated water. Do not allow fumigant to remain in the irrigation system after the application is complete. The total volume of water must be adequate to completely remove the fumigant from the irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal and/or normal irrigation practices.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Use only tanks constructed with materials approved for handling metam. Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have proper pesticide labels on them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The drip irrigation system (main lines, headers, drip tape) must be thoroughly checked for leaks before the start of the application. An adequate run-time and pressure are needed to detect leaks. Look for puddling along major pipes (holes on pipes or leaky joints), at the top and ends of rows (leaky connections, open drip tape), in the furrows and on the bed surface (damaged drip tape, malfunctioning emitters).
- To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
- The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Nozzles and metering devices are of correct size and are sealed and unobstructed.

Flood Basin, Furrow and Border Applications

Wind Speed

- 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.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
- 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.
- Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online at: http://www.nws.noaa.gov or by contacting your local National Weather Service Forecasting Office.

Identifying Unfavorable Weather Conditions

- Unfavorable weather conditions block upward movement of air, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

- Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, tillage to fracture these layers must occur. The soil must be tilled prior to the application, at a minimum to the depth of the treatment zone.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Tarps

- When tarps are used for emission control, tarps must be installed immediately after application.
- When tarps are used, a written tarp plan must be developed and included in the FMP that includes:
  - Schedule and procedures for checking tarps for damage, tears, and other problems,
  - Plans for determining when and how repairs to tarp will be made, and by whom,
  - Minimum time following injection that tarp will be repaired,
  - Minimum size of damage that will be repaired,
  - Other factors used to determine when tarp repair will be conducted,
  - Schedule, equipment and methods used to cut tarp,
  - Aeration plans and procedures following cutting and /or slitting prior to tarp removal or planting, and
  - Schedule, equipment, and procedures for tarp removal.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

- The soil moisture in the top six inches of soil must be between 60% to 80% of soil capacity (field capacity) immediately prior to the application, subject to the exception below.
- EXCEPTION: In areas where soil moisture must exceed field capacity to form a bed (e.g., certain regions in Florida), soil capacity (field capacity) may exceed the 80% allocated above.
- If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is between 60% to 80% of soil capacity (field capacity) immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity (field capacity) requirement is met:

  coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

  moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

  medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining

on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture,** soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.

- If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

- Systems using a gravity flow pesticide dispersing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.
- Meter at a steady rate into 3 to 18 inches of water per treated acre during irrigation. IMPORTANT: Prior to starting the application, always inspect ditches and border areas to ensure containment of the irrigation waters. Apply only into field head ditch. DO NOT APPLY INTO ANY LATERAL DITCHES.
- Back-flow prevention devices must be installed and in working order.
- Use only tanks constructed with materials approved for handling metam. Tanks must be in good condition to ensure product does not spill or leak.
- Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.
- Tanks must have proper pesticide labels on them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
- Flow rates must be calibrated and checked for each application.
- All previous materials applied with the system must be cleaned thoroughly prior to fumigant application.
- System must be flushed after application to totally remove all fumigant.
- The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

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., the field or portion of a field treated with a fumigant in any 24-hour period, or for center pivot applications, which occur over many days, the total acres of a field treated). In addition, agricultural operations fumigating multiple application blocks as part of a larger fumigation may format their 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, separate 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) reflect 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 and/or certificate number, employer name, employer address)
- 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, odor complaints, or other emergencies).
- Fumigant Treated Area posting procedures (name, address, and phone number of person(s) who will post Fumigant Treated Area signs, location of posting 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., treated area 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 respirators 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 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
  - Measurements and documentation to ensure GAPs are achieved (e.g., measurement of soil and other site conditions)
- Description of hazard communication. (e.g., 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 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 and has documented the verification in the site-specific FMP; and
- 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.

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
    - 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)."

Maximum Application Rates for Pre-Plant Soil Fumigation

Maximum application rate is 320 lbs ai/A (75 gallons per treated acre).

Only for use on the following:

Cover crops (i.e., crops planted between periods of regular crop production to prevent soil erosion);

Crops grown solely for seed;

As well as (in alphabetical order):

alfalfa; amaranth (including leafy amaranth, Chinese spinach, tampala); anise; apple (including balsam, crabapple); apricot; artichokes; arugula (roquette); asparagus (nursery production only); barley; basil; beans (including: lima, green, fava, seed beans); beet (including garden);

berry (including black satin berry, blackberry, blueberry, boysenberry, chesterberry, lowberry, wild raspberry, youngberry, darrowberry, dewberry, cloudberry, elderberry, Cherokee blackberry, coryberry, European barberry, huckleberry, hullberry, gooseberry, cranberry, highbush cranberry, Himalayaberry, jostaberry, juneberry, Saskatoon berry, lingonberry, loganberry, lavacaberry, lucretiaberry, mammoth blackberry, marionberry, bingleberry, mountain pepper berries, mulberry, olallieberry, dirksen thornless berry, nectarberry, Oregon evergreen berry, partridgeberry, phenomenalberry, rangeberry, raspberry (black and red), ravenberry, riberry, rossberry, schisandra berry, serviceberry, Shawnee blackberry, strawberry)

bok choy; broccoli; brussels sprouts; cabbage (including Napa); calabaza; calamondin; cardoon; carrot; casaba; cauliflower; celeriac; celery (including: Chinese); celtuce; chayote (fruit); che; cherry (including: sweet and tart, chokecherry, pincherry); chervil; cheyenne; Chilean guava; Chinese greens; Chinese okra; Chinese waxgourd (Chinese preserving melon); chinquapin; chironja; chrysanthemum; cilantro; citrus citron; citrus hybrids; collard; corn salad; corn; cotton; cress (including: upland, yellow rocket, winter cress); cucumber (including: Chinese cucumber); cucuzza; currant, (including: black, red, native and other varieties and hybrids);

dandelion; dill; dock (sorrel); eggplant; endive (escarole); fennel, Florence (finochio); forest seedlings; garland; garlic; gherkin; ginger; gourd; grape; grapefruit; hechima; herbs (all); honey balls; honeysuckle; hyotan; kale; kiwifruit (including: fuzzy and hard); kohlrabi; kumquat; leek; lemon; lettuce (including: head and leaf); lime; loquat; mandarin (incluing : tangerine and satsuma); mango; mayhaw; maypop;

melon (including: bitter melon, cantaloupe, hybrids and/or cultivars, citron melon, Crenshaw melon, golden pershaw melon, mango melon, honeydew melon, muskmelon, Persian melon, pineapple melon, Santa Claus melon, snake melon, watermelon);

mint; muntries; mustard; nectarine; nursery stock (fruit seedlings and rose bushes only); nursery tree crops (including crops like maple, ash, dogwood);

nut (including: almond, beech nut, cashew, chestnut, hickory nut, Brazil nut, macadamia nut (bush nut), filbert (hazelnut), pecan, pistachio, walnut (black and English/Persian); onion; orach; orange (including: sour an sweet); ornamentals; parsley; peas (including: English and garden); peach; peanut; pear (including: oriental and balsam); pepper; phalsa; plum (including: Chickasaw and Damson); plumcot; potato; prune (fresh); pummelo; pumpkin; purslane (including: garden and winter); quince;

radicchio (red chicory); radish (including Oriental); rappini; rhubarb; rye; salal; sea buckthorn; soybean; spinach (including: New Zealand, Malabar, Indian); squash, (including: summer, winter, butternut, straightneck, Acorn, crookneck, hubbard, scallop, spaghetti); sugar beet; sweet potato; swiss chard; tangelo; tangor; tobacco; tomatoes; tree nuts (orchard replant only); turf (including golf courses); turnip; vegetable marrow; wheat; yams; zucchini.

Application with cement grinder and shredder equipment is prohibited. Open-pour applications are prohibited.

Use only according to label. Do not apply this product through any irrigation system unless the labeling on chemigation is followed.

GENERAL INSTRUCTIONS

Sectagon 42 is a water-soluble liquid. When applied to properly prepared soil, the liquid is converted into a gaseous fumigant. After a sufficient waiting period, the gas dissipates, leaving the soil ready for planting. Sectagon 42 is recommended for the suppression of weeds, plant parasitic nematodes, and soilborne fungi that cause reductions in the yield and quality of ornamental, food and fiber crops.

Sectagon 42 will suppress only those pests in the fumigation zone at the time of treatment. Recontamination may occur subsequent to the fumigant's dissipation from the soil.

Weeds and germinating weed seeds that are suppressed include Annual bluegrass, Bermuda grass, Chickweed, Dandelion, Ragweed, Henbit, Lambsquarter, Amaranthus sp. (Pigweed, Careless weed), Watergrass, Johnsongrass, Nutgrass, Wild morningglory, Purslane, Barnyardgrass, Crabgrass, Groundsel, Prickly lettuce, Pineappleweed, Nettleaf, Goosefoot, Nightshade, Shepherdspurse, Stinging nettle, Malva, London rocket, and Fiddleneck. The best weed suppression is obtained when Sectagon 42 is applied to weeds that are actively growing.

The soil-borne plant pathogenic fungi suppressed include species of Verticillium, Rhizoctonia, Pythium, Phytophthora, Sclerotinia.

The plant parasitic nematodes which Sectagon 42 suppresses include Root knot, Lesion, Dagger, Lance, Needle, Pin, Reniform, Stunt, Stubby root, Sting and Spiral.

Note: Sectagon 42 will only suppress nematodes that are in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that Sectagon 42 achieves at the time of application. In Oregon and Washington, Sectagon 42 will only suppress Miloidogyne Chitwoodi. Other pests suppressed include symphilids or garden centipedes.

TREATMENT GUIDELINES

For optimum results from soil fumigation with Sectagon 42 certain procedures should be observed at designated times in the treatment program. Described in this section are important guidelines for each of the four stages of the treatment process:

Planning a Sectagon 42 Application

Preparing a Field for Application

Applying Sectagon 42

Preparing for Planting after Application of Sectagon 42

Your sales representative will help you select the best treatment program for your particular needs.

PLANNING A SECTAGON 42 APPLICATION

Time of Application

Apply Sectagon 42 after harvest and 14 to 21 days before a new crop is planted. In some areas of North America, fall applications are preferred because the fumes dissipate over the winter, allowing planting to begin as soon as favorable springtime conditions arrive.

Application Rate

Apply 1 to 75 gallons of Sectagon 42 per treated acre depending on crop, target pest, and soil properties. Soil properties to consider when determining the application rate include the depth of soil to be treated, soil texture and percent organic matter.

Application in Tank Mix with Liquid Fertilizer

Sectagon 42 may be injected in a mixture with liquid fertilizers. Since the composition of liquid fertilizers vary considerably, the physical compatibility of each fertilizer/Sectagon 42 tank mix should be checked by using the following procedure:

Mix a small quantity of Sectagon 42 and liquid fertilizer in a glass container. Sectagon 42 and fertilizer should be mixed in the same ratio as they will be applied to the field (i.e., if 40 gallons of Sectagon 42 and 40 gallons of liquid fertilizer are to be applied per acre, then Sectagon 42 and fertilizer should be mixed in the jar in a 40:40 or 1:1 ratio). Agitate the liquids to attain a complete mixture.

If a uniform mix cannot be made, the mixture should not be used. If the mixture remains uniform for 30 minutes, the combination may be used. Should the mixture separate after 30 minutes, but readily remixes uniformly with agitation, the mixture can be used if adequate agitation is maintained in the tank.

DO NOT PLACE CAPS ON JAR, AS INCOMPATIBLE MIXES MAY EVOLVE HYDROGEN SULFIDE GAS.

USE PROMPTLY AFTER MIXING WITH WATER OR FERTILIZER. DO NOT ALLOW SOLUTION TO STAND.

Flush all equipment with water after each day's use. Disassemble valves and clean carefully.

Target Pest and Depth of Treatment

For suppression of weeds and fungi causing seed or seedling diseases, treatment of only the top 1 to 4 inches of soil may be required (see application specific requirements in the Good Agricultural Practices section of this label). For suppression of nematodes and fungi which occur throughout the rhizosphere, treatment to depths of greater than 4 inches may be required. For a given soil type, the required application rate will increase proportionately with the depth of treatment required.

For example, if 25 gallons of Sectagon 42 per acre is required to treat 4 inches, then 50 gallons of Sectagon 42 will be required to treat to a depth of 8 inches. Choose the appropriate application method to distribute Sectagon 42 evenly throughout the soil to the required depth.

Organic Matter in the Soil

Because of the absorbing effect of humus, soils with high levels of organic matter under the surface require higher than usual doses of Sectagon 42 with the maximum application rate being 75 gallons per acre. For example, muck soils require twice the amount of fumigant that would be used in mineral soils.

Soil Texture

Application rates will vary with the soil texture. For instance, clay soils require more Sectagon 42 than light sandy soil.

Soil Temperature During Treatment

At the time of fumigation, the soil temperature should be in the range of 40°F-90°F (4°-32°C).

Phytotoxicity

Sectagon 42 is phytotoxic. Protect valuable, non-target plants by stopping soil applications of Sectagon 42 at least 3 feet short of the drip line of trees, shrubs, and other desirable plants. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

APPLYING SECTAGON 42

Use of Diluted Sectagon 42

Do not store the diluted product. Use Sectagon 42promptly after it has been mixed

with water. In dilute solutions in water Sectagon 42 decomposes over a period of days. Although Sectagon 42 is stable in its concentrated form, it is unstable in acid dilutions.

CHEMIGATION–GENERAL PROCEDURES

When applying by chemigation methods the following precautions must be observed.

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun solid set, or hand move; flood (basin); furrow; border, or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

NOTE: Tessenderlo Kerley, Inc. does not encourage connection of chemigation systems to public water systems. The following information is provided for users who have evaluated all alternative application and water source options before choosing to make such a connection.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank measuring of at least twice the inside diameter of the fill pipe.

Do not apply when wind speed favors drift beyond the area intended for treatment.

GENERAL INSTRUCTIONS FOR SPRINKLER SYSTEMS

NOTICE: Do not operate irrigation systems without safety valves or other devices to prevent back siphoning of Sectagon 42 into water sources. Irrigation water treated with Sectagon 42 should be maintained on the treated area until the water is absorbed by the soil. The tank containing Sectagon 42 must be connected to the discharge side of the irrigation pump or other pressurized equipment attached to the irrigation line. Do not apply in irrigation systems that result in overlapping application of Sectagon 42. Do not apply when weather conditions favor drift from target areas.

PREPARING FOR PLANTING AFTER APPLICATION OF SECTAGON 42

Effect of Rain

If a Sectagon 42 application is rained on less than 24 hours after treatment, lack of suppression at and near the soil surface may result.

Recontamination

Precautions must be taken to prevent recontamination of treated soil with weed seeds, plant pathogenic fungi and plant parasitic nematodes. Use clean seeds and/or plants. Before farm equipment is driven into the treated area, it should be rinsed free of the untreated soil from other fields.

Interval Between Treatment and Planting

Because Sectagon 42 can be harmful to germinating and/or living plants, an appropriate interval must be observed between soil fumigation and planting. On well-drained soils which have a light to medium texture and which are not excessively wet or cold following application, planting can begin 14 to 21 days after treatment. If soils are heavy or especially high in organic matter, or if they remain wet and or cold (below 60°F or 15°C) following application, a minimum interval of 30 days should be observed.

Aeration before planting

Soils including soils high in clay or organic matter, should be allowed to aerate and dry thoroughly after treatment with Sectagon 42 During cold and/or wet weather, frequent shallow cultivation can aid the escape of Sectagon 42 from the soil.

Testing for Dissipation of Sectagon 42

After the waiting period has passed, if there are any questions about the complete escape of Sectagon 42 from the soil, transplant a seedling into the treated soil. If the plant develops normally without any signs of chemical injury, crop planting can begin.

USES, APPLICATION METHODS & RATES
FIELD APPLICATION WHERE ENTIRE AREA IS BEING TREATED

POWER ROLL SEAL METHOD (NON-TARP)

Use a RO-TO-VATE & ROLL Applicator only. Contact your local agricultural extension service, distributor or the manufacturer for approved RO-TOVATE & ROLL Application specifications.

When to Treat: Apply Sectagon 42 2 to 6 weeks prior to planting, whenever soil type and conditions permit. For best results with annual crops, treat the soil each year. Do not use Sectagon 42 to treat any type of soil when it is cold and/or wet (when soil is colder than 40¡F or contains more moisture than 80% field capacity).

Application: Use undiluted Sectagon 42 to the desired depth below the final soil surface. (Contact your dealer or the manufacturer for the specifications for suitable application equipment).

IMPORTANT SOIL TREATMENT PRECAUTIONS

Crops to be hilled: For crops that require soil movement (hilling) prior to or after planting, incorporate Sectagon 42 to a depth that will allow the tillage required to occur without penetrating below the depth of treatment (see application specific requirements in the Good Agricultural Practices section of this label).

Crops to be bedded: For crops to be bedded, care must be taken that exposed sides of raised beds are not cracked or open compared to the power rolled surface. If necessary, add power rollers of the required height or other sealing equipment to the ends of the bedding equipment to seal the sides.

Note: The use of Sectagon 42 for the suppression of weeds, weed seeds and shallow inhabiting soil fungi requires that NO SOIL CULTIVATION OCCUR FOLLOWING TREATMENT until time of planting.

This method of treating soil with Sectagon 42will not be effective for the suppression of nematodes outside the treated zone. This method of Sectagon 42 application can be used in combination with other soil fumigants to suppress the nematodes persisting in the surface 1 to 6 inches of soil normally not suppressed with injected soil fumigants.

Zone of treatment will be limited by diameter of applicator. If pest is deeper than applicator can treat to, use a different method. For further information contact your local agricultural extension service or the manufacturer.

SOIL INJECTION

Use injectors (shanks, blades, fertilizer wheels, plows, etc.) to apply Sectagon 42 at the rate of 15 to 75 gallons per acre into well prepared soil. Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil.

Example: apply through injectors placed 4 inches below surface and 5 inches apart.

SPRINKLER SYSTEM

Use only those sprinkler systems which give large water droplets to prevent excess loss. Use 37.5 to 75 gallons Sectagon 42 per acre for suppression of nematodes and fungi at a depth of 24 inches. For suppression of weeds and fungi at a depth of 8 inches or

less, use 15 to 75 gallons per acre. Inject the Sectagon 42 in enough water to reach to desired treatment depth. The product should be continuously metered into the irrigation system throughout the entire application period. Flush the system with only enough water to clear lines. If the soil surface dried quickly, reseal it with 15 minutes of water once a day for the next day or two.

To prevent runoff of treatment solution during sprinkler application, do not exceed the infiltration rate of the solution into the soil. Should runoff occur, isolate it from growing crops and water sources. Once collected, reapply it to the treated area. See use precautions in "CHEMIGATION" section.

CHECK OR FLOOD IRRIGATION

Meter Sectagon 42 at a steady rate into water during irrigation. Use 40 to 75 gallons of Sectagon 42 per acre, depending upon the kind of pest and depth desired, in 3 to 18 inches of water per acre. See use precautions in "CHEMIGATION" section.

DISC APPLIED METHOD

Spray Sectagon 42 immediately in front of disc. Use 15 to 75 gallons per acre. Follow immediately with a roller to smooth and compact the soil surface.

DRIP IRRIGATION

Sectagon 42 may be injected into drip irrigation systems prior to planting. The area must be calculated in accordance with the size of the band treated. Apply 40 gallons per broadcast acre in one acre inch of water (27,000 gallons). The resulting concentration is 700 ppm on a weight basis. (Example: if the emitters irrigate 10% of each acre then use 5 gallons Sectagon 42 in 2,700 gallons water). Inject continuously. Do not slug treat. See use precautions in "CHEMIGATION" section.

APPLICATION TO BED OR ROWS

POWER ROLL SEAL METHOD (NON-TARP)

Use a modified RO-TO-VATE & ROLL Applicator only. Contact your local agricultural extension service, distributor or the manufacturer for approved RO-TO-VATE & ROLL Applicator specifications.

When to treat: Apply Sectagon 42 2 to 6 weeks prior to planting whenever soil type and conditions permit. For best results with annual crops, treat the soil each year. Do not use Sectagon 42 to treat any type of soil when it is cold and/or wet (when soil is colder than 40°F or contains more moisture than 80% field capacity).

Application: Use undiluted Sectagon 42 Apply with suitable application equipment that will ensure incorporation of Sectagon 42 to the desired depth below the final soil surface. (Contact your dealer or the manufacturer for the specifications for suitable application equipment).

IMPORTANT SOIL TREATMENT PRECAUTIONS

Crops to be hilled: For crops that require soil movement (hilling) prior to or after planting, incorporate Sectagon 42 to a depth that will allow the tillage required to occur without penetrating below the depth of treatment (see application specific requirements in the Good Agricultural Practices section of this label).

Crops to be bedded: For crops to be bedded, care must be taken that exposed sides of raised beds are not cracked or open compared to the power rolled surface. If necessary, add power rollers of the required height or other sealing equipment to the ends of the bedding equipment to seal the sides.

Note: The use of Sectagon 42 for the suppression of weeds, weed seeds and shallow inhabiting soil fungi requires that NO SOIL CULTIVATION OCCUR FOLLOWING TREATMENT until time of planting.

This method of treating soil with Sectagon 42 will not be effective for the suppression of nematodes outside the treated zone. This method of Sectagon 42 application can be used in combination with other soil fumigants to suppress the nematodes persisting in the surface 1 to 6 inches of soil normally not suppressed with injected soil fumigants.

Zone of treatment will be limited by diameter of applicator. If pest is deeper than applicator can treat to, use a different method. For further information contact your local agricultural extension service or the manufacturer.

SOIL INJECTION

Sectagon 42 at the rate of 50 to 75 gallons per treated acre (1 to 1.5 pints per 100 sq. ft.), may be injected into preformed plant beds following the directions given above under soil injection. If a wider treated band is desired, space 2 or more injectors (shanks, blades, fertilizer wheels, etc.) at desired intervals to cover the desired treating width. Seal immediately.

If Sectagon 42 is injected into established plant beds to terminate growth of a previous crop, and to fumigate the bed in preparation for planting a subsequent crop, the terminated crop should not be used for any food or feed purposes after Sectagon 42 has been applied.

SOIL COVERING METHOD (BED-OVER METHOD)

Sectagon 42 may be sprayed or dripped onto the soil immediately ahead of bed-shaping equipment. Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil. The recommended rate of Sectagon 42 is 40 to 75 gallons per acre of treated soil, approximately equivalent to .5 to 1.5 pints per 100 linear ft. of 12-inch wide row.

DRIP IRRIGATION

During pre-irrigation, check drip tape for uniform distribution and repair if necessary. Apply 15 to 75 gallons Sectagon 42 per treated acre (0.25 to 1.5 pints per 100 sq. ft. of treated soil) using enough water to thoroughly wet entire desired treatment zone. During the entire irrigation period, inject Sectagon 42 continuously into drip line as close as possible to treatment area. Two or more lines per bed may be needed to ensure full coverage.

Application must be continuously supervised. Weed suppression will not be satisfactory if too much water is applied (if 80% field capacity is exceeded). An adequate concentration of Sectagon 42 must be present at the time of weed seed germination in order to be effective. See use precautions in "CHEMIGATION" section.

DRENCH METHOD

Sectagon 42 may be applied to finished beds in enough water to soak at least 2 inches deep for suppression of shallow seeded weeds. To avoid contamination by untreated soil, do not disturb the treated area. Apply 15 to 75 gallons of Sectagon 42 per treated acre.

ADDITIONAL RECOMMENDATIONS

TOBACCO PLANT BEDS

Fall applications are recommended wherever possible. Read and follow DIRECTIONS FOR USE carefully. Treatment in the South should generally be made before November 30.

DRENCH METHOD: Apply 2 gallons Sectagon 42 in 150 to 200 gallons of water per 100 sq. yd. Application may be made with sprinklers, sprayers with nozzles or any suitable equipment. Follow directions given above for seed bed treatment.

SYMPHYLID SUPPRESSION

Soil should be in good seed bed condition to a depth of 8 to 10 inches. Maintain adequate moisture during spring season. Treat during July-August when symphylids are in the upper soil surface. Apply 15 gallons Sectagon 42 per acre using blade or chisel injector. Inject below level of symphylid concentration, usually 6 to 8 inches. Pack soil immediately after application.

NOTE: Sectagon 42 will only suppress nematodes which are in the fumigated zone at

the time of treatment.

POTATOES

For suppression of potato pests such as Root knot nematodes, Weed seeds, Verticullum dahlias (Early maturity disease).

Apply 30 to 75 gallons Sectagon 42 per acre using injectors (shanks, blades, fertilizer wheels, plows, etc.) Follow immediately with a bedshaper, roller press wheel or similar device or cover with an adequate amount of soil to seal the fumigant into the soil.

Sprinkler system preplant application – Use 37.5 to 75 gallons of Sectagon 42 per acre. Inject into a sprinkler system that can deliver an even water distribution for the area being treated. Inject all of the Sectagon 42 needed for the area covered and apply in enough water to reach the desired treatment depth. Soil temperature should be in the range of 40°F to 90°F in the treatment zone. Soil moisture immediately prior to treatment must be 60 to 80% of field capacity down to 24" level. Soil condition must facilitate even moisture penetration without runoff. Do not apply when plants are present. See use precautions in "CHEMIGATION" section.

NOTE: Sectagon 42 will suppress Root knot nematodes in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that Sectagon 42 achieves at the time of application.

If high numbers or deep nematodes are identified, anticipate nematodes to build up throughout the growing season. Some damage will occur unless additional action is taken.

Sectagon 42 has no soil residual and reinfestation of a field can occur from numerous sources such as deep nematode populations, seed pieces, irrigation water, equipment contamination and blowing wind.

EARLY MATURITY DISEASES OF POTATOES IN OREGON

Apply 30 gallons Sectagon 42 per acre using injectors (shanks, blades, fertilizer wheels, plows, etc.) Follow immediately with a bedshaper, roller press wheel or similar device or cover with an adequate amount of soil to seal the fumigant into the soil.

NOTE: Sectagon 42 will suppress Root knot nematodes in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that Sectagon 42 achieves at the time of application.

MINT

Verticillium wilt control.

When infestation is limited to small spots in a field, spread can be reduced by treating the soil with 75 gallons Sectagon 42 per treated acre (1½ pints per 100 sq. ft.) using injector blade or thin shank injector rig with injectors spaced at intervals to cover the desired treating width.

WHEAT AND BARLEY

For suppression of certain root diseases caused by Early season soil fungi – before applying Sectagon 42 cultivate the area to be treated to break up clods. Apply 2 to 7.5 gallons per treated acre 14 to 21 days before planting. Sectagon 42 may be diluted with water or non-acidic liquid fertilizer immediately before applying. Inject Sectagon 42 to a depth of 5 to 8 inches into moist soil. Space injector shanks at intervals to cover the desired treating width.

Do not mix Sectagon 42 with acidic fertilizer or other acidic solutions. Use only in areas which receive 15 or more inches of rainfall per year.

PEANUTS

Cylindrocladium Black Rot (CBR) Suppression:

Apply Sectagon 42 at the following rates:

CBR-resistant cultivar (NC8C): 7.5 gallons per treated acre or 4 pints per 1,000 feet of treated row CBR-susceptible peanut cultivars (Florigant, GK-3, NC-5 Keel 29): 15 gallons per treated acre or 8 pints per 1,000 feet of treated row.

CBR-highly susceptible cultivars (VA 81B, NC7): use of Sectagon 42 is not recommended.

Soil Preparation: Before applying Sectagon 42 residue from the previous crop should be decomposed (enhanced by fall discing) and plowed under in the spring with mold-board plow. Soil incorporated preplant herbicides must be applied before application of Sectagon 42.

Application: Apply Sectagon 42 with a gravity flow regulator through chisel-type or counter-type applicators. Center each applicator, one per row, in front of a bedshaper to mark the location of chemical deposition. Sectagon 42 should be deposited 6 to 8 inches below the soil surface of beds. Bed and applicator spacing should coincide with row spacing at planting. Soil temperatures must be in the range of 60°F to 90°F at injection depth before application.

Tillage and Planting after Application: Do not mix treated soil with untreated soil by tillage or other cultural practices. Plant peanuts in the center of treated beds no earlier than 14 days following application of Sectagon 42. An at-planting nematicide treatment will be necessary in fields with heavy infestation of Root knot, Ring and/or String nematode.

FOR SUPPRESSION OF SPECIFIC ORCHARD DISEASES (SUCH AS SPECIFIC APPLE REPLANT DISEASE)

Use 62 to 75 gallons of Sectagon 42 per treated acre. It is best to have the replant site prepared to a planting consistency which includes irrigating to 70% field capacity before Sectagon 42 application. Treatment can be made in the Fall or Spring before planting but Fall application is the preferred timing. Spring application can be riskier because the interval between treatment and planting is critical; see CAUTIONS listed below. Do not harvest fruit within one (1) year of application.

There are three application techniques that may be used: 1) Entire orchard site, 2) Individual tree row site, and 3) Individual tree plant site.

Entire orchard site: Inject the desired amount of Sectagon 42 into a sprinkler system to treat the entire replant site. Figure the irrigation schedule required to cover the desired treatment depth. Start the irrigation system and inject the Sectagon 42 one-third to one-half way through the cycle making sure to leave enough time at the end of the cycle to seal the application with plain water.

Individual tree row site: Two methods of application may be used to apply Sectagon 42 to individual tree row sites: Method One is to apply Sectagon 42 through a portable irrigation system such as a sprinkler or drip system; Method Two is to apply the desired amount of Sectagon 42 through a weed sprayer while the irrigation system is running. For either method and after identifying the position of the future tree row site, apply Sectagon 42 one-third to one-half way through the required irrigation cycle leaving enough time at the end of the cycle to apply plain water, sealing the Sectagon 42 in the ground.

Individual tree plant site: Use 18 to 24 fluid ounces of Sectagon 42 per 100 gallons of water. Use 16 gallons of this solution in a 4 by 4 foot planting hole. Water and product amount adjustments can be made to accommodate different size planting holes to ensure product movement to desired depth. Replace dirt removed.

TARPING: Tarping of replant sites is required when near (1/2 mile) to populated areas, such as schools, hospitals, commercial or office buildings, factories, residential areas, etc. Tarping is not required if treatment is farther than 1/2 mile from such populated areas.

CAUTIONS: INTERVAL BETWEEN TREATMENT AND PLANTING

Because Sectagon 42 is harmful to living plants, an appropriate interval must be observed between Sectagon 42 application and planting. On well-drained soils which have a light to medium texture and are not excessively wet or cold following application, planting can begin 21 to 30 days after treatment. If soils are heavy or especially high in organic matter or if they remain wet and/or cold (below 60 degrees F) following application, a minimum interval of 30 to 45 days should be observed. Where the dosage approaches the 75 gallons per acre rate, wait at least 60 days.

HARVEST OF ANY FRUIT WITHIN ONE (1) YEAR OF TREATMENT IS PROHIBITED.

Conditions of Sale and Warranty

CONDITIONS OF SALE – LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES

The directions on this label are believed to be reliable and must be followed carefully. Insufficient control of pests and/or injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions, or the failure to follow the label directions, or good application practices, all of which are beyond the control of Tessenderlo Kerley, Inc., or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. Tessenderlo Kerley, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use, subject to the factors noted above which are beyond the control of Tessenderlo Kerley, Inc. Except as warranted by this label, Tessenderlo Kerley, Inc. makes no other warranties or representations of any kind, express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose. To the extent consistent with applicable law, the exclusive remedy against Tessenderlo Kerley, Inc. for any cause of action relating to the handling or use of this product is a claim of damage, and in no event shall damages or any other recovery of any kind against Tessenderlo Kerley, Inc. exceed the price of the product which causes the alleged loss, damage, injury, or other claim. To the extent allowed by applicable law, Tessenderlo Kerley, Inc. shall not be liable and any and all claims against Tessenderlo Kerley, Inc. are waived, for special, indirect, incidental or consequential damages or expense of any nature, including, but not limited to, loss of profits or income, whether or not based on the negligence of Tessenderlo Kerley, Inc., breach of warranty, strict liability in tort, or any other cause of action. Tessenderlo Kerley, Inc. and the seller offer this product, and the buyer and users accept it, subject to the foregoing conditions of sale and limitations of warranty, liability and remedies.

NOTICE TO BUYER: Purchase of this material does not confer any rights under patents of countries outside of the United States.
Sectagon and NovaSource are registered trademarks of Tessenderlo Kerley, Inc.

Manufactured for:
Tessenderlo Kerley, Inc.
2255 N. 44th Street, Suite 300
Phoenix, AZ 85008 USA
1-800-525-2803

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

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Dawn Kominski
Tessenderlo-Kerley, Inc.
2255 N. 44th Street, Suite 300
Phoenix, AZ 85008-3279

NOV 30 2010

Subject: Sectagon 42
EPA Reg. No. 61842-6
Agency Initiated Action

Dear Ms. Kominski:

With regard to EPA's May 13, 2010 approval of your label amendment, EPA has determined pursuant to 40 CFR § 152.130(d) that no product bearing previously approved labeling may be sold or distributed (release for shipment) by its registrant after December 31, 2010. This determination replaces the date of December 1, 2010 in the previous approval letter.

If you have any questions, please contact Jose Gayoso by phone at (703) 347-8652 or via email at gayoso.jose@epa.gov or Shaja Joyner by phone at (703) 308-3194 or via email at joyner.shaja@epa.gov.

Sincerely,

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

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

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Dawn Kominski
Tessenderlo-Kerley, Inc.
PO Box 15627
Phoenix, AZ 85060

JUL 13 2010

Subject: Sectagon 42
EPA Reg. No. 61842-6
Metam Alliance's Request on Your Behalf to Amend Label

Dear Ms. Kominski:

In the Agency letter of May 13, 2010, the Agency approved amended labeling for this registration with the condition that specific label revisions be made to the May 13, 2010 label stamped "Accepted with Comments". This letter further amends the May 13, 2010 letter by revising the label comments and by requiring additional changes.

1. (Label p.3) (EPA Comment 4-b) (Alliance issue #17)
   Replace EPA's comment with this text:
   - In the "User Safety Requirements" section, add the following sentences: "DO NOT transport contaminated clothing inside a closed vehicle unless stored in a sealed container. Wash or dispose as specified."

2. (Label p.5) (Alliance issue # 1)
   At the end of the "Directions for Use" section add the following sentence: "Do not apply when wind speed favors drift beyond the area intended for treatment."

3. (Label p.4) (EPA Comment 5-a) (Alliance issue # 3)
   Disregard EPA's comment to add additional California restrictions back on the label.

4. (Label p.6) (EPA Comment 7-a) (Alliance issue #7)
   Replace EPA's comment with this text:
   - At the end of the "Protection for Handlers" section, add the following sentence: "Cartridges or canisters must be replaced when odor or irritation from this product becomes apparent, if the measured concentration of MITC is greater than 6000 ppb, or after 8 hours of use, whichever occurs first."

5. (EPA Comment 9-g) (Alliance issue # 9)
   Disregard EPA's comment about air temperature.

6. (Label pages 16 and 17) (Alliance issue # 8)
   - In the wind speed section of the "Center Pivot" section, replace the first two bullets with the following:
     - For sprinkler or **center pivot** applications: 1) not using a solid stream type nozzle, OR 2) having a release height or spray height greater than 4 feet, OR 3) having 30 lbs or greater PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.

     - For sprinkler or **center pivot** applications using 1) a solid stream, AND 2) having release height and spray height less than 4 feet, AND 3) having 29 lbs. or less PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach **5** mph during the application and the maximum wind speed is 25 mph.

7. (Multiple label pages) (Alliance issue # 12)
   In the "Soil Conditions" sections of Solid Set Sprinkler; Drench; and Drip, Flood Basin, Furrow and Border applications, the first bullet must be revised to the following:
   - "Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, tillage to fracture these layers must occur. The soil must be tilled prior to the application, at a minimum to the depth of the treatment zone."

8. (Multiple label pages) (Alliance issue # 51)
   Under the "Application and Equipment Considerations" sections of the Center Pivot; Solid Set Sprinkler; Drench; Drip; and Flood Basin, Furrow and Border applications revise the statement as shown:
   - "Tanks must be ~~inspected,~~ in good condition~~, and not past their life expectancy~~ to ensure product does not spill or leak."

9. (Multiple label pages) (Alliance issue # 52)
   Under the "Application and Equipment Considerations" sections of the Center Pivot; Solid Set Sprinkler; Drench; Drip; and Flood Basin, Furrow and Border applications revise the statement as shown:
   - "The system must contain a functional check valve, vacuum relief valve, <u>inspection port</u>, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow."

10. (Label p.26) (Alliance issue # 42)
    Add the following to the "Application and Equipment Considerations" section of the GAP for Drip Application method:
    - "Nozzles and metering devices are of correct size and are sealed and unobstructed."

11. (Label p.39) (Alliance Issue # 19B)
    Delete the Tarp Method section.

12. (Label pages 41 and 42)
    Verify that the warranty and disclaimer language is up to date. See the link below for further information.
    http://www.epa.gov/oppfead1/labeling/lrm/chap-12.htm#IX

The label associated with these changes has been previously stamped "Accepted with Comments" and is dated May 13, 2010. Submit one copy of the final printed label that incorporates the required changes before the product is released for shipment. If you have any questions, please contact Cathryn O'Connell by phone at (703) 308-0136 or via email at oconnell.cathryn@epa.gov or Erik Kraft by phone at (703)308-9358 or via email at kraft.erik@epa.gov.

Sincerely,

Erik Kraft
Acting Product Manager (20)
Fungicide Branch
Registration Division (7504P)

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1203 Nineteenth Street, NW | Suite 300 | Washington, DC | 20036-2401 | *tel* 202.557.3800 | *fax* 202.557.3836 | *web* www.lawbc.com

June 8, 2010

Via E-Mail

Ms. Cathryn O'Connell
Team Leader
Special Review and Reregistration Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
Ariel Rios Building, MC: 7508P
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

RE: Revisions to Required Language on Metam Sodium and Metam Potassium Labels

Dear Cathryn:

On behalf of Amvac Chemical Corporation, Taminco Inc., and Tessenderlo Kerley, Inc., members of the Metam Sodium Alliance (Alliance), appended is a draft table entitled *Revisions to Required Language in EPA's Comments on Metam Sodium and Metam Potassium Labels* (Table). The Table sets forth the results of the discussions to date between the Alliance and the U.S. Environmental Protection Agency (EPA) concerning the list of issues, submitted to EPA on June 1, 2010, arising from EPA's comments on the recently stamped-approved labels for metam sodium and metam potassium registered products.[1] The Table, once the Alliance submits it in final form, would be intended to document all final changes for the labels that differ from EPA's comments in the cover letters for the recently stamped-approved labels. The Alliance drafted the table so that, once it is completed with all label issues, EPA could stamp it as approved and, for each registered product, include it in EPA's Pesticide Product Label System as part of the currently approved label. The Alliance notes that this draft of the Table includes only those issues discussed with EPA to date; there are a number of other issues that the Alliance is working to summarize and submit to EPA, some of which are included in the separately submitted Attachment 2.

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1 As part of its ongoing discussions with EPA, the Alliance is submitting subsequent issues list(s) for discussion. The Alliance anticipates that one or more similar tables will be developed based on the Alliance and EPA's discussion of these additional issues.

The Table consists of four columns: The first numbers the issues in the same way as the issues were numbered in the June 1, 2010, issues list. Entries have been omitted for those issues for which EPA and the Alliance agreed to EPA's original changes in the EPA comments on the stamped-approved labels; accordingly, some numbers in the first column are skipped, so the rest of the numbering corresponds with the June 1, 2010, issues list. The second identifies the registered product labels that are affected for each revision to EPA's comments. The third repeats the text of EPA's comments concerning each change from the recent cover letters to each stamped-approved label. The fourth contains the revised final changes to the label language, as discussed and agreed to by EPA and the Alliance, that will be made to each label listed in the second column.

The Alliance has the following explanatory comments for the Table for certain issues, as identified below. Not every change on the Table is noted or listed below, but rather only those needed changes that the Alliance thought might need more explanation than the Table provides are listed below:

- **Issue 1:** EPA required the addition of this statement (or similar statements) in its comments for only certain labels. The Alliance wishes to add the revised language to all labels for consistency. The Alliance therefore has added the additional labels, for which EPA did not include this change in its comments, to column 2.

- **Issue 2:** EPA required the addition of this statement (or similar statements) in its comments for only certain labels. The Alliance wishes to add the revised language to all labels for consistency. The Alliance therefore has added the additional labels, for which EPA did not include this change in its comments, to column 2.

- **Issue 8:** EPA required the addition of this statement in its comments for only certain labels. The Alliance wishes to add it to all labels for consistency. The Alliance therefore has added the additional labels, for which EPA did not include this change in its comments, to column 2. Additionally, the Alliance is researching as expeditiously as possible whether EPA's PSI statement is correct and acceptable.

- **Issue 10:** EPA required the addition of this statement in its comments for only certain labels. The Alliance wishes to add it to all labels for consistency. The Alliance therefore has added the additional labels, for which EPA did not include this change in its comments, to column 2.

Additionally, the Alliance requests EPA to confirm that it intended "Center Pivot" when it stated "Chemigation."

- **Issue 11:** EPA required the deletion of this statement in its comments for only certain labels. The Alliance wishes to make this deletion to all labels for consistency. The Alliance therefore has added the additional labels, for which EPA did not include this change in its comments, to column 2.

- **Issue 12:** EPA required the modification of this statement in its comments for only certain labels. The Alliance wishes to add the modification to all labels for consistency. The Alliance therefore has added the additional labels, for which EPA did not include this change in its comments, to column 2.

- **Issue 16:** The Alliance has confirmed that a weed sprayer is not a hand-held application method. Accordingly, no label change is required.

Finally, under separate cover today, the Alliance is submitting a second list of issues for discussion with EPA. In that list, Issue 20A raises the following issue:

> On a recurrent but not consistent basis in its comments, EPA has referred to the "Flood Basin, Furrow, and Border Applications" GAP as "Furrow and Border applications." It was unclear if these were typographical errors; the comment in the letter for Metam 376, above [A REFERENCE TO ISSUE 20], is the only place identified in which EPA expressly states that the title of this GAP section should be revised. EPA needs to clarify whether and on what basis this title should be modified uniformly.

We wish to highlight this issue in this cover letter because the answer could affect all labels and may require a revision to the Table, to change the name of the GAP application method, if that is required.

BERGESON & CAMPBELL, P.C.

The Alliance remains committed to working as expeditiously as possible to prepare complete, accurate, and consistent labels and submit them for review by the States.

Sincerely,

Lisa Campbell

Lisa M. Campbell

Attachments

Attachment 2

Additional Label Issues for Metam Sodium and Metam Potassium Products

Issue 18.

Section: GAPs Section: Soil Conditions, Injection Depth and Soil Sealing

Affected Labels: Metam Sodium, EPA Registration Number 5481-350
Metam 426, EPA Registration Number 5481-423

- The following text was new in the prototype label and in the 15 submitted labels, in the GAPs Soil Conditions, Injection Depth and Soil Sealing section for the following application methods: Shank; Spray Blade; and Rotary Tiller.

- EPA states the text must be modified as indicated below ("or more" deleted).

  For applications: The injection point for bedded and broadcast applications shall be a minimum of 3 inches from the final soil/air interface. Chisel traces must be eliminated following an application and the soil surface must be sealed immediately after application using one ~~or more~~ of the following methods:

  - *Compaction with a bed-shaper, roller, press wheel or by similar device, OR*
  - *Covering the treated soil with 3-6 inches of untreated soil, OR*
  - *Applying a minimum of a ½-inch of water beginning immediately after application of a set and completing the water treatment within four hours, OR*
  - *Covering treated area with a tarp.*

The Alliance wishes to retain the words "or more" on its labels, and moreover, wishes for consistent language on all of the labels.

Issue 19.

Section: Tobacco Plant Beds

Affected Labels: Metam Sodium, EPA Registration Number 5481-350
Metam 426, EPA Registration Number 5481-423
VAPAM, EPA Registration Number 5481-466
VAPAM HL, EPA Registration Number 5481-468
AMV 540, EPA Registration Number 5481-483
Metam Sodium Soil Fumigant, EPA Registration Number 5481-418
Metam CLR 42%, EPA Registration Number 45728-16

- The following "Tarp Method" language was original label language that was deleted from the prototype label and the labels listed above.

- EPA states that the "Tarp Method" language below must be added back to the labels under the "Tobacco Plant Beds" heading, with the indicated modifications.

- The "Tarp Method" language also was deleted from Sectagaon-K54, EPA Reg. No. 61842-7, but EPA did not state in its comments on that label that this language must be added back. This original language did not appear in the other labels (except for Metam KLR 54%, EPA Reg. No. 45728-27, and Sectagon 42, EPA Reg. No. 61842-6; these labels contained this original language but did not delete it from the labels submitted to EPA. EPA did not comment on the retained language.)

  Tobacco Plant Beds
  Fall applications are recommended whenever possible. Read and follow the use directions carefully. Treatment in the South should generally be made before November 30.

  Tarp Method
  Prepare the bed 5 to 7 days before application to insure best conditions for weed seed germination and fumigant action of METAM SODIUM. The bed should be free of clods, level and in good tilth. Apply 1 to 1-1/2 gallons of METAM SODIUM in a minimum of 40 gallons of water per 100 square yards. Apply uniformly over the entire bed. Cover the bed immediately with a plastic cover (see the Tarp Perforation and/or Removal section for additional information.) ~~Keep covered no less than one day, but no more than 2 days.~~ The cover need not be tented, but should be secured to prevent wind from uncovering the treated area. Seven days after the date of application, loosen the treated soil to a depth of 2 inches. Do not seed tobacco earlier than 21 days after the METAM SODIUM application.

The Alliance does not agree that the "Tarp Method" text should be added back to the labels that previously contained this text. Consistent with the prototype label, the Alliance wishes to delete this text from all labels that previously had it, so that the labels are consistent.

Issue 20.

Section: Good Agricultural Practices (GAPs)

Affected Labels: Amvac Metam, EPA Registration Number 5481-420
Metacide 42, EPA Registration Number 5481-446
Metam 376 for Crop Use, EPA Registration Number 481-458

- The prototype label and 14 of the 15 submitted labels contained GAPs language for all eight application methods: Shank; Spray Blade; Rotary Tiller; Center Pivot; Solid Set Sprinkler; Drench; Drip; and Flood Basin, Furrow and Border applications. Sodcure 376, EPA Reg. No. 5481-474, was submitted with only Shank, Rotary Tiller, and Drench; the latter was renamed, "Spray on and Irrigate."

- EPA states that certain GAPs application method sections for the above-listed labels must be removed, as identified below. The Alliance is reviewing this issue as expeditiously as possible to determine if these application methods were on the prior approved labels.

  - For Amvac Metam, EPA Reg. No. 5481-420: Delete the Center Pivot; Solid Set Sprinkler; Drench; Drip; and Flood Basin, Furrow and Border applications sections.

  - For Metacide 42, EPA Reg. No. 5481-446: Delete the Center Pivot; Solid Set Sprinkler; Drench; Drip; and Flood Basin, Furrow and Border applications sections.

  - For Metam 376 for Crop Use, EPA Reg. No. 5481-458: Delete Center Pivot/Chemigation; Solid Set Sprinkler; and Drench; and "Flood Basin, Furrow, and Border Applications," which EPA states should be revised to read "Furrow and Border Applications."

Issue 20A. On a recurrent but not consistent basis in its comments, EPA has referred to the "Flood Basin, Furrow, and Border Applications" GAP as "Furrow and Border applications." It was unclear if these were typographical errors; the comment in the letter for Metam 376, above, is the only place identified in which EPA expressly states that the title of this GAP section should be revised. EPA needs to clarify whether and on what basis this title should be modified uniformly.

Issue 21.

Section: Treatment of Tree Replant Sites; Prevention of Root Graft Transmission of Dutch Elm and Oak Wilt Disease

Affected Labels: Amvac Metam, EPA Registration Number 5481-420
Metacide 42, EPA Registration Number 5481-446

- The prototype label did not contain the following section, Treatment of Tree Replant Sites; neither did eight submitted product-specific labels.

- The following five labels contained the section, Treatment of Tree Replant Sites, but did not contain the subsequent, "Prevention of Root Graft Transmission of Dutch Elm and Oak Wilt Disease": Metam Sodium, EPA Reg. No. 5481-350; Metam 426, EPA Reg. No. 5481-423; AMV 540, EPA Reg. No. 5481-483; Metam Sodium Soil Fumigant, EPA Reg. No. 5481-418; Sectagon-K54, EPA Reg. No. 61842-7. EPA did not comment on this section for these labels.

- For the two labels listed above, EPA states that the following sections must be removed or redrafted to exclude the use of hand-held application methods.

TREATMENT OF TREE REPLANT SITES
After removing dead or diseased trees and as much of the root system as possible, make a shallow basin over the planting site. Add AMVAC METAM to the stream of water while filling the basin. Use 1 qt. AMVAC METAM per 100 sq. ft. in sufficient water (depending on soil type) to penetrate at least 5 ft. For control of Oak Root fungus, use a basin at least 20x20 ft square. Increase dosage to 2 qts. per 100 sq. ft in sufficient water to penetrate to the depth of root system. If water is tanked to the planting site, add to AMVAC METAM the water and mix before filling basin.

The Treatment of Tree Replant Sites does not involve the use of hand-held application methods; accordingly, the Alliance does not believe the above text from the two labels on which EPA commented should be deleted. The Alliance agrees to delete the Prevention of Root Graft Transmission of Dutch Elm and Oak Wilt Diseases language, below. These changes should result in consistent label language for all the labels that have the Treatment of Tree Replant Sites on their labels.

~~**PREVENTION OF ROOT GRAFT TRANSMISSION OF DUTCH ELM AND OAK WILT DISEASES**~~
~~Immediately after a tree is diagnosed as having Dutch Elm Disease or Oak Wilt disease, isolate the diseased tree from healthy trees with the AMVAC METAM treatment. If a diseased tree is less than 20 feet from the healthy tree or has advanced wilt symptoms, it may be necessary to treat at two sites – one between the diseased and the first healthy-appearing tree and one between the first and the second healthy-appearing trees. This measure is advisable because the causal fungus may have already passed from the diseased to the first healthy-appearing tree before AMVAC METAM was applied.~~

~~Use AMVAC METAM diluted in one part to three parts water for Dutch Elm disease and diluted one part to ten parts of water for Oak Wilt disease. Drill holes in soil approximately ¾ to 1 inch in diameter, 15 inches deep to 6 to 9 inches apart. Fill each hole with diluted AMVAC METAM to within 2 inches of the solution surface.~~

~~Make the line of treatment sufficiently long to kill all roots of the two adjacent trees that are likely to root-graft. Apply the chemical slowly and carefully to avoid overflowing the drilled holes. This will reduce grass kill. Tamp each hole closed with the heel. Diseased tree must be removed but allow at least two weeks after treatment before removing.~~

Issue 22.

Section: General Instructions

Affected Labels: Amvac Metam, EPA Registration Number 5481-420

- Text that is the same as or similar to that below, under the General Instructions heading, was shown as deleted original text in the prototype label and the following additional labels: Metam Sodium, EPA Reg. No. 5481-350; Metam 426, EPA Reg. No. 5481-423; VAPAM, EPA Reg. No. 5481-466; VAPAM HL, EPA Reg. No. 5481-468; AMV 540, EPA Reg. No. 5481-483; Metam Sodium Soil Fumigant, EPA Reg. No. 5481-418.

- EPA states that the first four sentences in the following text must be deleted because the GAPs sections contain more precise directions related to soil moisture. The text marked with single-line strike-through was shown as deleted in the label submitted to EPA. It appears that EPA wants at least the text shown below in double-line strike-through also deleted; EPA will need to clarify whether additional text must be removed.

  GENERAL INSTRUCTIONS

  ~~Before applying this product always thoroughly cultivate the area to be treated, breaking up clods and loosening soil deeply and thoroughly a week before treatment, moisten soil after cultivation to the desired depth. If the soil has crusted, cultivate lightly immediately before application.Then: (a) Lightly sprinkle with water the area to be treated before applying AMVAC METAM. (b). Apply AMVAC METAM uniformly over the area. (c).~~ Immediately sprinkle treated area with water to seal the soil. Sprinkle to the point of run-off. NOTE: DO NOT ALLOW WATER TO RUN OFF OF TREATED AREA AS PLANTS IN ADJOINING AREAS MAY BE DAMAGED.

- Metacide 42, EPA Reg. No. 5481-446, retained the same text as the one label listed above, but in its comments EPA did not state that similar changes must be made. Sodcure 376, EPA Reg. No. 5481-474, retained general similar text, but EPA similarly did not comment on this label's text either.

- The remaining labels did not contain similar text in the original label language.

The Alliance agrees with EPA that the deleted language should be removed but believes the rest of the text should be removed as well ("Immediately sprinkle … MAY BE DAMAGED.") Additionally, the Alliance wishes to make this change uniformly to all the labels that contained this text.

Issue 25.

Section: General Instructions

Affected Labels: Amvac Metam, EPA Registration Number 5481-420

- EPA states that the following language must be inserted under the General Instructions section: "IMPORTANT! – TARPING IS REQUIRED WHEN USING METAM SODIUM WITHIN ½ MILE OF POPULATED AREAS such as schools, hospitals, commercial or office buildings, factories, residential areas, etc. when using Metam Sodium in Seed Beds.

- This language is not in the comments for other submitted product-specific labels. It was not part of the original language in the prototype or product-specific labels.

The Alliance does not believe this language should be added to the label.

Revisions to Required Language in EPA's Comments on Metam Sodium and Metam Potassium Labels

Issue	Affected Labels	EPA's Comment	Revised Language
1	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use, Reg. No. 5481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	Insert in Directions for Use: Do not apply when conditions favor drift from adjacent treated areas. Or Do not apply when conditions favor drift from treated areas such as adjacent crops, highways, or schools. Or Do not apply when wind speed favors drift beyond the area intended for treatment.	Insert in Directions for Use: Do not apply when wind speed favors drift beyond the area intended for treatment. **[DELETE THIS OR SIMILAR STATEMENTS FROM OTHER SECTIONS OF THE LABEL.]**
2	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use, Reg. No. 481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	Insert in Use Precautions and/or Directions for Use: Do not use in greenhouses or any other enclosed structure or confined area. Or Do not use in confined areas without adequate ventilation or when fumes may enter nearby dwellings.	Insert in Use Precautions and/or Directions for Use: Do not use in greenhouses or any other enclosed structure or confined area.

Issue	Affected Labels	EPA's Comment	Revised Language
3	Metam Sodium, Reg. No. 5481-350 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use Reg. No. 481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	Insert in Directions for Use: CALIFORNIA ONLY: Application must be in compliance with Technical Information Bulletin for California entitled 'Metam Sodium Guideline for All Application Methods in California.' This information bulletin may be obtained from your local pesticide dealer or a Metam Sodium registrant.	[None] **[EPA COMMENT LANGUAGE IS NOT REQUIRED.]**
7	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use Reg. No. 5481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	Insert at end of Protection for Handlers: Cartridges or canisters must be replaced when odor or irritation from this product becomes apparent, if the measured concentration of metam sodium is greater than 6000 ppb, or after 8 hours of use, whichever occurs first.	Revise metam sodium to MITC: Cartridges or canisters must be replaced when odor or irritation from this product becomes apparent, if the measured concentration of MITC is greater than 6000 ppb, or after 8 hours of use, whichever occurs first.
8	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446	Replace existing GAP Wind Speed language for Center Pivot Application with the following:	Replace existing GAP Wind Speed language for Center Pivot Application with the following:

Issue	Affected Labels	EPA's Comment	Revised Language
	Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use Reg. No. 5481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	• For sprinkler or chemigation applications: 1) not using a solid stream type nozzle, OR 2) having a release height or spray height greater than 4 feet, OR 3) having 30 lbs or greater PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph. • For sprinkler or chemigation applications using 1) a solid stream, AND 2) having release height and spray height less than 4 feet, AND 3) having 29 lbs. or less PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 55 mph during the application and the maximum wind speed is 25 mph.	• For sprinkler or **center pivot** applications: 1) not using a solid stream type nozzle, OR 2) having a release height or spray height greater than 4 feet, OR 3) having 30 lbs or greater PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph. • For sprinkler or **center pivot** applications using 1) a solid stream, AND 2) having release height and spray height less than 4 feet, AND 3) having 29 lbs. or less PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach **5** mph during the application and the maximum wind speed is 25 mph. **[THE ALLIANCE BELIEVES, BUT WISHES TO CONFIRM, THAT EPA INTENDED (AS NOTED IN BOLD) "CENTER PIVOT" INSTEAD OF "CHEMIGATION."]** **[THE ALLIANCE IS RESEARCHING AS EXPEDITIOUSLY AS POSSIBLE WHETHER THE PSI STATEMENT IS CORRECT AND ACCEPTABLE.]**

Issue	Affected Labels	EPA's Comment	Revised Language
9	Metam Sodium, Reg. No. 5481-350 Metam 426, Reg. No. 5481-423 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use Reg. No. 481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	Add to GAPs: *Air Temperature* • The maximum air temperature is 90 degrees F.	[None]
10	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use Reg. No. 481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	Add underlined language to existing text and delete text as shown, for Chemigation, Solid Set Sprinkler, Drench, Drip, and Flood Basin, Furrow and Border applications in the GAPs: If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application ~~*before or during injection*~~. To conserve existing soil moisture, tillage should be done as close to the time of application as possible. **[CAN EPA CONFIRM WHETHER IT MEANS "CENTER PIVOT" FOR CHEMIGATION.]**	Add underlined language to existing text and delete text as shown, for **Center Pivot**, Solid Set Sprinkler, Drench, Drip, and Flood Basin, Furrow and Border applications in the GAPs: If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application ~~*before or during injection*~~. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.

Issue	Affected Labels	EPA's Comment	Revised Language
11	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use Reg. No. 481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	For the following application methods, delete the first sentence from the GAPs Soil Conditions section as shown: Drench, Drip, and Flood Basin, Furrow and Border: ~~Plant residue must be worked into the soil with little or no crop residue present on the soil surface.~~ Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.	For the following application methods, delete the first sentence from the GAPs Soil Conditions section as shown: Drench, Drip, and Flood Basin, Furrow and Border: ~~Plant residue must be worked into the soil with little or no crop residue present on the soil surface.~~ Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.
12	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418	Add underlined language to existing text and delete text as shown to the GAP Soil Conditions section, for the following application methods: Solid Set Sprinkler, Drench, Drip, and Flood Basin, Furrow and Border. Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If	Add underlined language to existing text and delete text as shown to the GAP Soil Conditions section, for the following application methods: Solid Set Sprinkler, Drench, Drip, and Flood Basin, Furrow and Border. Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If

Issue	Affected Labels	EPA's Comment	Revised Language
	Metam 376 for Crop Use Reg. No. 481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, ~~a~~ ~~*deep*~~ tillage to fracture these layers must occur ~~*prior to or as part of the soil fumigant application*~~. The soil must be tilled prior to the application, at minimum to the depth of the treatment zone.	subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, ~~a~~ ~~*deep*~~ tillage to fracture these layers must occur ~~*prior to or as part of the soil fumigant application*~~. The soil must be tilled prior to the application, at minimum to the depth of the treatment zone.
14	AMV 540, Reg. No. 5481-483 Metam KLR 54%, Reg. No. 45728-27 Sectagon-K54, 61842-7	EPA states that the maximum application rate for conversion for gallons should be changed to 55 gallons/Acre. Additionally, EPA states, "All other places on the label that state applications may be made up to 60 gallons per acre must be changed to not allow any applications at rates higher than 55 gallons per acre. All rates, including those provided in linear feet, must be checked not to exceed the maximum allowed."	**[THE ALLIANCE IS RESEARCHING AS EXPEDITIOUSLY AS POSSIBLE WHETHER THIS REDUCTION IN APPLICATION RATES IS APPROPRIATE FOR THE METAM POTASSIUM LABELS. IN ADDITION, THE ALLIANCE IS SIMILARLY RESEARCHING EPA COMMENTS MADE FOR CERTAIN METAM SODIUM PRODUCTS ABOUT THE APPLICABLE MAXIMUM APPLICATION RATE.]**
15	Metam KLR 54%, Reg. No. 45728-27	Delete the following text as shown from Field Application to Beds or Rows, Soil Covering Method **SOIL COVERING METHOD *(Bed-Over Methods)*:** Metam KLR 54% may be sprayed in a bed wide band onto the soil immediately ahead of bed shaping equipment. Cover the Metam KLR 54% with soil to a depth of 3 to 6 inches. The soil should be rolled and compacted immediately. Apply up to at the rate of 30 to 60 gallons per acre of treated soil *(or see crop-specific considerations in*	[None] **[EPA COMMENT LANGUAGE IS NOT REQUIRED.]**

Issue	Affected Labels	EPA's Comment	Revised Language
		the Additional Information section of this label) ~~or 11 to 22 fluid ounces per 100 linear feet of row (12-inch bed). If a narrower or wider bed is to be treated, adjust the fluid ounces/100 linear feet of row to reflect the actual treated acres (see "Method of Determining Fluid Ounces per 100 Feet of Linear Row" section).~~	
16	Metam KLR 54%, Reg. No. 45728-27	In the Orchard Re-Plant section, EPA states that the term "weed sprayer" must be clarified as handheld equipment is prohibited.	[None]
17	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam 376 for Crop Use Reg. No. 481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	Insert the underlined text below: **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. <u>DO NOT transport contaminated clothing inside a closed vehicle. Store in a sealed container as wash or dispose as specified.</u> **User Safety Recommendations**	Insert the underlined text below: **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. <u>DO NOT transport contaminated clothing inside a closed vehicle, unless stored in a sealed container. Wash or dispose as specified.</u> **User Safety Recommendations**

Issue	Affected Labels	EPA's Comment	Revised Language
		Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.	Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Metam -- Label Amendments
Lisa M. Campbell
to:
Cathryn OConnell
06/16/2010 10:02 PM
Show Details

Cathryn --

Appended is an updated table of changes that the Alliance members believe needed for the labels listed. We have not provided with this submission the back-up issue descriptions that we had previously provided, but would pleased to do so if that would be helpful. AMVAC may have a few additional changes specific to some of its particular labels; any such changes will be submitted as soon as possible. We hope that this is helpful. Please let me know if you have any questions.

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This e-mail may contain confidential or privileged information. If you are not the intended recipient, please advise by return e-mail and delete immediately without reading or forwarding to others.

Revisions to Required Language in EPA's Comments on Metam Sodium and Metam Potassium Labels
June 16, 2010

Issues 4-6, and 13 are deliberately omitted as these issues have been otherwise resolved.

Issue	Affected Labels	EPA's Comment	Revised Language
1	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use, Reg. No. 5481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	Insert in Directions for Use: Do not apply when conditions favor drift from adjacent treated areas. Or Do not apply when conditions favor drift from treated areas such as adjacent crops, highways, or schools. Or Do not apply when wind speed favors drift beyond the area intended for treatment.	Insert in Directions for Use: "Do not apply when wind speed favors drift beyond the area intended for treatment." **[DELETE THIS OR SIMILAR STATEMENTS FROM OTHER SECTIONS OF THE LABEL. THE ALLIANCE CAN PROVIDE MORE SPECIFIC INFORMATION.]**
2	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Sectagon 42, Reg. No. 61842-6	Insert in Use Precautions and/or Directions for Use: Do not use in greenhouses or any other enclosed structure or confined area. Or Do not use in confined areas without adequate ventilation or when fumes may enter nearby dwellings.	Insert in Use Precautions and/or Directions for Use: "Do not use in greenhouses or any other enclosed structure or confined area."
3	Metam Sodium, Reg. No. 5481-350 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 VAPAM, Reg. No. 5481-466	Insert in Directions for Use: CALIFORNIA ONLY: Application must be in compliance with Technical	[NONE]

Issue	Affected Labels	EPA's Comment	Revised Language
	VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use Reg. No. 5481-458 Metam CLR 42%, Reg. No. 45728-16 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	Information Bulletin for California entitled 'Metam Sodium Guideline for All Application Methods in California.' This information bulletin may be obtained from your local pesticide dealer or a Metam Sodium registrant.	
7	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use Reg. No. 5481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	Insert at end of Protection for Handlers: Cartridges or canisters must be replaced when odor or irritation from this product becomes apparent, if the measured concentration of metam sodium is greater than 6000 ppb, or after 8 hours of use, whichever occurs first.	Revise metam sodium to MITC: "Cartridges or canisters must be replaced when odor or irritation from this product becomes apparent, if the measured concentration of **MITC** is greater than 6000 ppb, or after 8 hours of use, whichever occurs first."
8	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418	Replace existing GAP Wind Speed language for Center Pivot Application with the following: • For sprinkler or chemigation applications: 1) not using a solid stream type nozzle, OR 2) having a release height or spray height greater than 4 feet, OR 3) having 30 lbs or greater PSI at the sprinkler head,	Replace existing GAP Wind Speed language for Center Pivot Application with the following: • For sprinkler or **center pivot** applications: 1) not using a solid stream type nozzle, OR 2) having a release height or spray height greater than 4 feet, OR 3) having 30 lbs or greater PSI at the sprinkler head,

Issue	Affected Labels	EPA's Comment	Revised Language
	Metam 376 for Crop Use Reg. No. 5481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph. • For sprinkler or chemigation applications using 1) a solid stream, AND 2) having release height and spray height less than 4 feet, AND 3) having 29 lbs. or less PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 55 mph during the application and the maximum wind speed is 25 mph.	wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph. • For sprinkler or **center pivot** applications using 1) a solid stream, AND 2) having release height and spray height less than 4 feet, AND 3) having 29 lbs. or less PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach **5** mph during the application and the maximum wind speed is 25 mph.
9	Metam Sodium, Reg. No. 5481-350 Metam 426, Reg. No. 5481-423 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use Reg. No. 5481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	Add to GAPs: *Air Temperature* • The maximum air temperature is 90 degrees F.	[NONE]

Issue	Affected Labels	EPA's Comment	Revised Language
10	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use Reg. No. 5481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	Add underlined language to existing text and delete text as shown, for Chemigation, Solid Set Sprinkler, Drench, Drip, and Flood Basin, Furrow and Border applications in the GAPs: If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application ~~before or during injection~~. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.	Add underlined language to existing text and delete text as shown, for **Center Pivot**, Solid Set Sprinkler, Drench, Drip, and Flood Basin, Furrow and Border applications in the GAPs: If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application ~~before or during injection~~. To conserve existing soil moisture, tillage should be done as close to the time of application as possible.
11	Amvac Metam, Reg. No. 5481-420 Metacide 42, Reg. No. 5481-446 Sodcure 376, Reg. No. 5481-474 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	[NONE] [EPA ASKED FOR CHANGES TO BE MADE IN OTHER LABELS]	For the following application methods, delete the first sentence from the GAPs Soil Conditions section as shown: Drench, Drip, and Flood Basin, Furrow and Border: ~~Plant residue must be worked into the soil with little or no crop residue present on the soil surface.~~ Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may

Issue	Affected Labels	EPA's Comment	Revised Language
			create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.
12	Amvac Metam, Reg. No. 5481-420 Metacide 42, Reg. No. 5481-446 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 Metam 376 for Crop Use Reg. No. 5481-458 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	[NONE] [EPA ASKED FOR CHANGES TO BE MADE IN OTHER LABELS]	Add underlined language to existing text and delete text as shown to the GAP Soil Conditions section, for the following application methods: Solid Set Sprinkler, Drench, Drip, and Flood Basin, Furrow and Border. Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, ~~a deep~~ tillage to fracture these layers must occur ~~prior to or as part of the soil fumigant application~~. The soil must be tilled <u>prior to the application</u>, at minimum to the depth of the treatment zone.
14	AMV 540, Reg. No. 5481-483 Metam KLR 54%, Reg. No. 45728-27 Sectagon-K54, 61842-7	EPA states that the maximum application rate for conversion for gallons should be changed to 55 gallons/Acre. Additionally, EPA states, "All other places on the label that state applications may be made up to 60 gallons per acre must be changed to not allow any applications at rates higher than 55 gallons per acre. All rates, including those provided in linear feet, must be checked not to exceed the	[NONE]

Issue	Affected Labels	EPA's Comment	Revised Language
		maximum allowed."	
15	Metam KLR 54%, Reg. No. 45728-27	Delete the following text as shown from Field Application to Beds or Rows, Soil Covering Method **SOIL COVERING METHOD *(Bed-Over Methods)*:** Metam KLR 54% may be sprayed in a bed wide band onto the soil immediately ahead of bed shaping equipment. Cover the Metam KLR 54% with soil to a depth of 3 to 6 inches. The soil should be rolled and compacted immediately. Apply up to at the rate of 30 to 60 gallons per acre of treated soil *(or see crop-specific considerations in the Additional Information section of this label)* ~~or 11 to 22 fluid ounces per 100 linear feet of row (12-inch bed). If a narrower or wider bed is to be treated, adjust the fluid ounces/100 linear feet of row to reflect the actual treated acres (see "Method of Determining Fluid Ounces per 100 Feet of Linear Row" section).~~	[NONE]
16	Metam KLR 54%, Reg. No. 45728-27	In the Orchard Re-Plant section, EPA states that the term "weed sprayer" must be clarified as handheld equipment is prohibited.	[NONE]
17	Metam Sodium, Reg. No. 5481-350 Amvac Metam, Reg. No. 5481-420 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474	Insert the underlined text below: **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	Insert the underlined text below: **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

Issue	Affected Labels	EPA's Comment	Revised Language
	AMV 540, Reg. No. 5481-483 Metam 376 for Crop Use Reg. No. 5481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	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. DO NOT transport contaminated clothing inside a closed vehicle. Store in a sealed container **as** wash or dispose as specified. **User Safety Recommendations** Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.	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. DO NOT transport contaminated clothing inside a closed vehicle, unless stored in a sealed container. Wash or dispose as specified. **User Safety Recommendations** Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.
18	Metam Sodium, Reg. No. 5481-350 Metam 426, Reg. No. 5481-423	Delete text shown in strikeout in the GAPs Soil Conditions, Injection Depth and Soil Sealing Section for the Shank, Spray Blade, and Rotary Tiller Application Methods: • *For applications: The injection point for bedded and broadcast applications shall be a minimum of 3 inches from the final soil/air interface. Chisel traces must be eliminated following an application and the soil surface must be sealed immediately after application using*	[NONE]

Issue	Affected Labels	EPA's Comment	Revised Language
		one ~~or more~~ of the following methods: • *Compaction with a bed-shaper, roller, press wheel or by similar device, OR* • *Covering the treated soil with 3-6 inches of untreated soil, OR* • *Applying a minimum of a ½-inch of water beginning immediately after application of a set and completing the water treatment within four hours, OR* • *Covering treated area with a tarp.*	
19A	Metam Sodium, Reg. No. 5481-350 Metam 426, Reg. No. 5481-423 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam CLR 42%, Reg. No. 45728-16	Add back "Tarp Method" language under "Tobacco Plant Beds" heading with modifications: **Tobacco Plant Beds** Fall applications are recommended whenever possible. Read and follow the use directions carefully. Treatment in the South should generally be made before November 30. **Tarp Method** Prepare the bed 5 to 7 days before application to insure best conditions for weed seed germination and fumigant action of METAM SODIUM. The bed should be free of clods, level and in good tilth. Apply 1 to 1-1/2 gallons of METAM SODIUM in a minimum of 40 gallons of water per 100 square yards. Apply uniformly over the entire bed. Cover the bed immediately with a plastic cover (see the Tarp Perforation and/or Removal section for additional	[NONE]

Issue	Affected Labels	EPA's Comment	Revised Language
		information.) ~~Keep covered no less than one day, but no more than 2 days.~~ The cover need not be tented, but should be secured to prevent wind from uncovering the treated area. Seven days after the date of application, loosen the treated soil to a depth of 2 inches. Do not seed tobacco earlier than 21 days after the METAM SODIUM application.	
19B	Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6	[NONE]	Delete "Tobacco Plant Beds" and "Tarp Method" section.
21	Amvac Metam, Reg. No. 5481-420 Metacide 42, Reg. No. 5481-446	Remove or redraft to exclude use of hand-held application methods for the following: **TREATMENT OF TREE REPLANT SITES** After removing dead or diseased trees and as much of the root system as possible, make a shallow basin over the planting site. Add AMVAC METAM to the stream of water while filling the basin. Use 1 qt. AMVAC METAM per 100 sq. ft. in sufficient water (depending on soil type) to penetrate at least 5 ft. For control of Oak Root fungus, use a basin at least 20x20 ft square. Increase dosage to 2 qts. per 100 sq. ft in sufficient water to penetrate to the depth of root system. If water is tanked to the planting site, add to AMVAC METAM the water and mix before filling basin.	[NONE]

Issue	Affected Labels	EPA's Comment	Revised Language
22**A**	Amvac Metam, Reg. No. 5481-420 Metacide 42, Reg. No. 5481-446	Delete the following text under the "General Instructions" section as shown: **GENERAL INSTRUCTIONS** ~~Before applying this product always thoroughly cultivate the area to be treated, breaking up clods and loosening soil deeply and thoroughly a week before treatment, moisten soil after cultivation to the desired depth. If the soil has crusted, cultivate lightly immediately before application. Then: (a) Lightly sprinkle with water the area to be treated before applying AMVAC METAM. (b). Apply AMVAC METAM uniformly over the area. (c).~~ Immediately sprinkle treated area with water to seal the soil. Sprinkle to the point of run-off. NOTE: DO NOT ALLOW WATER TO RUN OFF OF TREATED AREA AS PLANTS IN ADJOINING AREAS MAY BE DAMAGED.	Delete all of the following text as shown: **GENERAL INSTRUCTIONS** ~~Before applying this product always thoroughly cultivate the area to be treated, breaking up clods and loosening soil deeply and thoroughly a week before treatment, moisten soil after cultivation to the desired depth. If the soil has crusted, cultivate lightly immediately before application. Then: (a) Lightly sprinkle with water the area to be treated before applying AMVAC METAM. (b). Apply AMVAC METAM uniformly over the area. (c). Immediately sprinkle treated area with water to seal the soil. Sprinkle to the point of run-off. NOTE: DO NOT ALLOW WATER TO RUN OFF OF TREATED AREA AS PLANTS IN ADJOINING AREAS MAY BE DAMAGED.~~
22**B**	Sodcure 376, Reg. No. 5481-474	[NONE]	Delete all of the following text as shown: **GENERAL INSTRUCTIONS** ~~Before applying SODCURE 376 to areas with poor water penetration or severe compaction prepare the turf by hollow core aerification or other available methods to increase water penetration. NOTE: Do not use wetting agents to increase water penetration into the turf profile within 7 days of treatment.~~

Issue	Affected Labels	EPA's Comment	Revised Language
25	Amvac Metam, Reg. No. 5481-420	Add the following language under the "General Instructions" section: IMPORTANT! - TARPING IS REQUIRED WHEN USING METAM SODIUM WITHIN ½ MILE OF POPULATED AREAS such as schools, hospitals, commercial or office buildings, factories, residential areas, etc. when using Metam Sodium in Seed Beds.	[NONE]
26	Metam Sodium, Reg. No. 5481-350 Metam 426, Reg. No. 5481-423 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Metam CLR 42%, Reg. No. 45728-16 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant, Reg. No. 5481-418 METAM KLR 54%, Reg. No. 45728-27 SECTAGON-K54, Reg. No. 61842-7	Add the deleted text back to the label with modifications as shown: **Check Flood (Basin) Furrow and Border** ~~Meter METAM 426 at a steady rate into water during irrigation. Depending on the kind of pest and the treatment depth desired, use 30 to 75 gallons per treated acre in 3 to 18 inches of water per acre. Meter the product into the water at the head of the field.~~ Meter METAM 426 at a steady rate into water during irrigation. Depending on the kind of pest and the treatment depth, use **[37.5-75]** gallons per treated acre in 3 to 18 inches of water per acre. Meter METAM 426 into the **[irrigation]** water at the head of the field at a point with enough turbulence to assure adequate mixing of the product in the water. IMPORTANT: Prior to starting the application, always inspect ditches and border areas to ensure containment of the irrigation waters. Damage to bordering crops will occur if leaks develop. Apply only into field head ditch. DO NOT APPLY INTO ANY LATERAL DITCHES.	Replace current statement with the following: **Check Flood (Basin) Furrow and Border** Depending on the kind of pest and the treatment depth, use [INSERT RATE] gallons per treated acre in 3 to 18 inches of water per acre. [Applicable Use Rates for Insertion: Metam Sodium, #5481-350 40-100 Metam 426, #5481-423 30-75 VAPAM, #5481-466 50-100 VAPAM HL, #5481-468 37.5-75 Metam CLR 42%, #45728-16 37.5-75 AMV 540, #5481-483 30-60 Metam Sodium Soil Fumigant, #5481-418 40-100 METAM KLR 54%, #45728-27 30-60 SECTAGON-K54, #61842-7 30-60]

Issue	Affected Labels	EPA's Comment	Revised Language
27	Amvac Metam, Reg. No. 5481-420 Metacide 42, Reg. No. 5481-446 Sectagon 42, Reg. No. 61842-6	Modify label language as shown: For Metacide 42, #5481-446: **ORGANIC MATTER IN THE SOIL** ~~Plant material under the soil surface should be thoroughly decomposed before applying METACIDE 42.~~ Because of the absorbing effect of humus, soils with high levels of organic matter under the surface require a higher rate ~~than usual doses~~ of METACIDE 42 (not to exceed the maximum application rate of 75 gallons per treated acre). For example, muck soils require twice the amount of fumigant that would be used in mineral soils. See the Uses, Application Methods and Rates section of this label for additional information. For Sectagon 42, Reg. No. 61842-6: **Organic Matter in the Soil** Because of the absorbing effect of humus, soils with high levels of organic matter under the surface require higher than usual doses of SECTAGON 42. For example, muck soils require twice the amount of fumigant that would be used in mineral soils with the maximum application rate being 75 gallons per acre.	Replace current statement with the following: **ORGANIC MATTER IN THE SOIL** Soils with high levels of organic matter under the surface may require a higher rate of [INSERT BRAND NAME] (not to exceed the maximum application rate of 75 gallons per treated acre.)
28	Amvac Metam, Reg. No. 5481-420 Metacide 42, Reg. No. 5481-446	Modify label language as shown: **CULTIVATION AND PLANTING AFTER APPLICATION** On well drained soil of light to medium texture which are not excessively wet or cold following application, planting may take place 14 to 21 days after treatment.	Delete the entire section, **Cultivation and Planting After Application**.

Issue	Affected Labels	EPA's Comment	Revised Language
		If soils are heavy or especially high in organic matter or remain wet and/or cold (below 60°F) following application of METACIDE 42 an extended interval should be observed. ~~Where dosages are greater than 100 gals. per acre, wait at least 60 days.~~ On heavy, wet soils, light surface cultivation to break up crusting and promote drying of the soil should be done 5 to 7 days after application (see the Tarp Perforation and/or Removal section for additional information). This cultivation may be repeated as necessary. To avoid reinfesting treated soils, cultural practices should be such that untreated soils are not mixed with treated soils.	
29	Metacide 42, Reg. No. 5481-446	Add the deleted text back to the label with modifications as shown IMPORTANT – When injection is within 300 feet of sensitive areas (i.e., locations where people are expected to be present within 48 hours of soil injection if permitted, ~~such as schools, hospitals or other occupied buildings)~~ (see Entry Restricted Period section for additional details), use a tarp or a minimum of 0.25 inch of water seal over the entire treated area.	[NONE]

Issue	Affected Labels	EPA's Comment	Revised Language
30	SECTAGON-K54, Reg. No. 61842-7	Insert the underline text below in the GAPs Center Pivot Applications header: **Center Pivot <u>(lateral move, end tow, side (wheel) roll, traveler, and big gun)</u> Applications**	[NONE]
31	SECTAGON-K54, Reg. No. 61842-7	Insert the underlined text below in the GAPs Solid Set Sprinkler header: **Solid Set Sprinkler <u>(And Hand Move)</u> Applications**	[NONE]
32	Metam Sodium, Reg. No. 5481-350 Metam 426, Reg. No. 5481-423 Metacide 42, Reg. No. 5481-446 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam 376 for Crop Use Reg. No. 5481-458 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27	Delete the text shown in strike-out text below: **OBSERVE THE FOLLOWING PRECAUTIONS IF YOUR CHEMIGATION SYSTEM IS CONNECTED TO A PUBLIC WATER SYSTEM:** Public water system is defined as a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Chemigation systems must contain a functional, reduced pressure zone (RPZ), backflow preventer or the functional equivalents in the upstream water supply line from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and top of	Add or retain the following sentence, modified as shown below: Any alternatives to the ~~above~~-required safety devices <u>in this label</u> must conform to the list of EPA-approved alternative devices.

Issue	Affected Labels	EPA's Comment	Revised Language
		overflow rim of the reservoir tank of at least the inside diameter of the fill pipe. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump. ~~The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.~~ ~~The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in the cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.~~ ~~Systems must use a metering pump such as a positive displacement injection bump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. *Any alternatives to the above required safety devices must conform to the list of EPA- approved alternative devices.*~~	

Issue	Affected Labels	EPA's Comment	Revised Language
33	Metam Sodium, Reg. No. 5481-350 Metam 426, Reg. No. 5481-423 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon-K54, Reg. No. 61842-7	From the end of the **Check Flood (Basin), Furrow and Border** section, delete the following sentence: ~~Follow instructions under "General Precautions for Irrigation Systems" section of this label.~~	Delete all cross references to the former "General Precautions for Irrigation Systems" section.
34	Metam KLR 54%, Reg. No. 45728-27	Delete text as shown below: SPRINKLER SYSTEM PRE-PLANT APPLICATIONS: Apply 30 to 60 ga1lons of Metam KLR 54% per acre in sufficient water to penetrate to the desired treatment depth. Meter continuously throughout the entire application period. ~~Soil temperature should be in the range of 40ºF to 90ºF in the treatment zone. Soil moisture immediately prior to treatment must be 50% to 80% of field capacity down to the 24-inch level. Soil condition must facilitate even water penetration without runoff.~~ NOTES: ~~1. Metam KLR 54% may be applied where a crop stubble or vegetation exists without prior tillage, provided there is adequate penetration of the product.~~ 2. Metam KLR 54% will suppress *Root Knot* nematodes in the treatment zone at the time of treatment. The	Delete the entire "SPRINKLER SYSTEM PRE-PLANT APPLICATIONS" section from the label.

Issue	Affected Labels	EPA's Comment	Revised Language
		treatment zone is defined as the depth of penetration that Metam KLR 54% achieves at the time of application. If high numbers or deep nematodes are identified, anticipate nematodes to build up throughout the growing season. Some damage may occur unless additional action is taken. Metam KLR 54% has no residual activity and re-infestation of a treated field can occur from numerous sources such as deep nematode populations, seed pieces, irrigation water, equipment contamination and blowing wind.	
35	Sectagon 42, Reg. No. 61842-6	Delete the following section as shown: ~~Application over cover crops: Sectagon 42 can be applied through center pivot or solid set sprinkler systems on cover crops that are living and less than approximately eight inches tall such as alfalfa, clover, green beans, and grasses such as rye, oats, wheat, and sudan. When applied over cover crops, no soil cultivation is required before the application. The terminated crop must not be used for any food or feed purpose after Sectagon 42 has been applied.~~	[NONE]
36	Amvac Metam, Reg. No. 5481-420	Add the following statement at the end of the "Agricultural Use Requirements" section: Because certain states may require more restrictive reentry intervals, consult your state department of agriculture for	[NONE]

Issue	Affected Labels	EPA's Comment	Revised Language
		further information.	
37	Amvac Metam, Reg. No. 5481-420 Metacide 42, Reg. No. 5481-446	Delete the following text under the "Protection for Handlers" section: For all applications ~~except water run:~~ 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 all water-run applications (e.g., sprinkler/chemigation, wheel line, center pivot, lateral move, drip, flood, etc.), the certified applicator must be at the fumigation site in the line of sight of the application to start the application including set-up, calibration, and initiation of the application. The certified applicator may leave the site but must return at least every two hours to visually inspect the equipment to ensure proper functioning and must directly supervise all Worker Protection Standard-trained handlers on-site until the fumigation has stopped being delivered/dispersed into the soil. Worker Protection Standard-trained handlers may perform the monitoring functions in place of the certified applicator but must be under the supervision of the certified applicator and able to communicate with the certified applicator at all times during monitoring activities via cell phone or other means. The results of monitoring~~	[NONE]

Issue	Affected Labels	EPA's Comment	Revised Language
		~~activities must be captured in the Fumigation Management Plan (FMP).~~	
38	Amvac Metam, Reg. No. 5481-420 Metacide 42, Reg. No. 5481-446	Delete the following text from the "Directions for Use" section: ~~Installing, repairing, operating, or removing irrigation equipment in the application block;~~	[NONE]
39**A**	Amvac Metam, Reg. No. 5481-420 Metacide 42, Reg. No. 5481-446	Add the following statement under the "Direction for Use" section. This prohibition appeared on prior approved labels: Do not apply through any irrigation system.	Add the following statement under the "Direction for Use" section: Do not apply this product through any irrigation system unless the labeling on chemigation is followed. Delete statement from Metacide 42, Reg. No. 5481-446 under "Use Precautions": "Do not apply this product through any type of irrigation system."
39**B**	Metam 426, Reg. No. 5481-423 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 AMV 540, Reg. No. 5481-483 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	[NONE]	Add the following statement under the "Direction for Use" section: Do not apply this product through any irrigation system unless the labeling on chemigation is followed. Delete statement from Metam 376, Reg. No. 5481-456 under "Directions for Use": "Do not apply this product through any type of irrigation system."
40	Amvac Metam, Reg. No. 5481-420 Metacide 42, Reg. No. 5481-446	Remove the following language under the "Personal Protective Equipment (PPE)" section as this use is prohibited for this product:	[NONE]

Issue	Affected Labels	EPA's Comment	Revised Language
		~~Handlers applying via weed sprayer while irrigation sprinklers are running or handlers who may be exposed to liquid spray while repairing a malfunctioning chemigation system or shutting off equipment must wear:~~ • ~~Chemical-resistant coveralls over long-sleeve shirt and long pants,~~ • ~~Chemical-resistant gloves,~~ • ~~Chemical-resistant footwear plus socks,~~ • ~~Chemical-resistant headgear,~~ • ~~Protective eyewear, and~~ • ~~Respirator of the type specified in the respiratory protection section in the PPE requirements on this label.~~	
41	Amvac Metam, Reg. No. 5481-420 Metacide 42, Reg. No. 5481-446	Delete the following language under the "Personal Protective Equipment (PPE)" section: Except as required above, handlers transferring or loading liquid formulations, handlers operating motorized ground equipment with open cabs, ~~handlers repairing or inactivating irrigation or chemigation equipment during application,~~ and handlers cleaning up spills or equipment must wear:	[NONE]
42	Metam Sodium, Reg. No 5481-350 AMVAC Metam, Reg. No 5481-420 Metam 426, Reg. No 5481-423 Metacide 42, Reg. No 5481-446 VAPAM, Reg. No 5481-466 Metam 376, Reg. No 5481-458 VAPAM HL, Reg. No 5481-468 Metam CLR 42%, Reg. No 45728-16	[NONE]	Add the following to the "Application and Equipment Consideration section for the GAP Drip Application method: Nozzles and metering devices are of correct size and are sealed and unobstructed.

Issue	Affected Labels	EPA's Comment	Revised Language
	Metam KLR 54%, Reg. No 45728-27 Sectagon 42, Reg. No 61842-6 Sectagon K54, Reg. No 61842-7		
43	VAPAM, Reg. No. 5481-466	Add the following statement back to the label: VAPAM effectiveness is based on contact of the gaseous phase with a respiring pest. VAPAM will not control or suppress pests not actively respiring. VAPAM does not provide residual control. Pests that are dormant, protected by large clods, harbored by undecomposed plant material, not present at the time of application, or not present in the treatment zone will not be controlled. See Potatoes section for specific directions on the application of VAPAM to potato fields where no-till stubble or cover crop exist.	[NONE]
44A	VAPAM, Reg. No. 5481-466	Add this deleted statement back to the label. **Soil Temperature During Treatment** Soil temperature must be from 40°F to 90°F in the treated zone.	[NONE]
44B	Metam KLR 54%, Reg. No. 45728-27	[NONE]	Delete the following statement: **Soil Temperature During Treatment** Soil temperature must be from 40°F to 90°F in the treated zone.
45	VAPAM, Reg. No. 5481-466	Insert underlined text as shown below: **Days to Cultivating or Planting After Application**	[NONE]

Issue	Affected Labels	EPA's Comment	Revised Language
		Because VAPAM is harmful to germinating seeds and living plants, an appropriate interval must be observed between treatments and planting. On well-drained soils which have a light to medium texture and which are not excessively wet or cold (when soil is colder than 40°F or contains more than 80% field capacity) following the application, planting can begin 14 to 21 days after treatment. If soils are heavy or especially high in organic matter or if the soil remains wet and/or cold (when soil is colder than 40°F or contains more than 80% field capacity)~~(below 60°F)~~ following the application, a minimum interval of 21 days or greater should be observed. The interval before planting should be extended until the soil is sufficiently dry to allow for cultivation. **Cultivation of Soil Before Planting** IMPORTANT: Heavier soils including soils high in clay or organic matter should be allowed to aerate and dry thoroughly after treatment with VAPAM. During cold and/or wet (when soil is colder than 40°F or contains more than 80% field capacity) weather, frequent shallow cultivation can aid dissipation of VAPAM from the treated soil.	
46	AMV 540, Reg. No. 5481-483	Insert the following statement under the "USES, RATES AND APPLICATION METHODS" heading: This product is not to be used in the following counties of Texas: Atascosa,	[NONE]

Issue	Affected Labels	EPA's Comment	Revised Language
		Cameron, Duval, Hidalgo, Maverick, Starr, Willacy, Zapata.	
47**A**	AMV 540, Reg. No. 5481-483	Add back the following two bullets at the end of the "Soil Injection" section, under the Pacific Northwest Only heading: ➢ Planting may take place 14 to 21 days after the AMV540 application provided no fumes are detected at the time of planting. ➢ If noxious fumes are noticeable at planting, do not plant and rework the soil.	Add back the following two bullets at the end of the "Soil Injection" section, under the Pacific Northwest Only heading, as modified: ➢ Planting may take place 14 to 21 days after the AMV540 application provided no fumes are detected at the time of planting. ➢ If ~~noxious~~ fumes are noticeable at planting, stop~~do not~~ planting and rework the soil.
47**B**	Metam KLR 54%, Reg. No. 45728-27	[NONE]	In the section "Pacific Northwest States of Idaho, Nevada, Oregon and Washington," revise the following sentence as shown: Check for ~~noxious~~ fumes and aerate as needed. Similarly, in the section "Pacific Northwest Only," revise the following sentence as shown: If ~~noxious~~ fumes are noticeable at planting, stop~~do not~~ planting and rework the soil. Finally, in the "Orchard Re-Plant" section, revise the following sentence as shown: Check for ~~noxious~~ fumes in the soil before planting.

Issue	Affected Labels	EPA's Comment	Revised Language
48	Metam Sodium Soil Fumigant Reg. No. 5481-418	Reinsert the following text from the prior label: **ODORS DURING OR AFTER APPLICATION** Strong odors during or after application are a signal that the fumigant is escaping and needs to be sealed in the soil. If increasingly strong odors are occurring, the application should be stopped immediately and not resumed until the source of the odor problem is identified and corrected. For sprinkler applications or whenever possible with other application methods, a water seal should be applied immediately to the treated areas of the field.	[NONE]
49**A**	Metam 376 for Crop Use Reg. No. 5481-458	References to all application methods except drip must be removed from the following text, and it must be modified as shown: **STATEMENTS CONCERNING CHEMIGATION OF METAM 376** When applying by chemigation methods, the following directions or warnings must be observed. Apply this product only through sprinkler irrigation systems, including center pivot, lateral move, end tow, side wheel roll, traveler, big gun, solid set or hand move. Do not apply this product through any other type of irrigation system. Crop injury or lack of effectiveness <u>or illegal pesticide residues</u> in the crop can result from non-uniform distribution of treated water. If you have questions about calibration, you should contact State Extension Service	[NONE]

Issue	Affected Labels	EPA's Comment	Revised Language
		specialists, equipment manufacturers or other experts. Do not connect an irrigation system used for pesticide application to a public water system unless the pesticide label prescribed safety devices for public water systems are in place. A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person~~,~~ shall shut the system down and make necessary adjustments should the need arise.	
49B	Metam Sodium, Reg. No. 5481-350 Metam 426, Reg. No. 5481-423 Metam 376, Reg. No. 5481-456 VAPAM, Reg. No. 5481-466 VAPAM HL, Reg. No. 5481-468 Sodcure 376, Reg. No. 5481-474 AMV 540, Reg. No. 5481-483 Metam Sodium Soil Fumigant Reg. No. 5481-418 Metam CLR 42%, Reg. No. 45728-16 Metam KLR 54%, Reg. No. 45728-27 Sectagon 42, Reg. No. 61842-6 Sectagon-K54, Reg. No. 61842-7	[NONE]	From the "Statements Concerning Chemigation" section, revise the following statement as shown: Crop injury <u>or</u> lack of effectiveness~~, or illegal pesticide residues~~ in the crop can result ...
50	Metam 376 for Crop Use, Reg. No. 5481-458	Remove the paragraphs immediately above the "Effects of Rain" section.	[NONE]
51	Amvac Metam, Reg. No. 5481-420 Sodcure 376, Reg. No. 5481-474 Sectagon 42, Reg. No. 61842-6	[NONE]	Under the "Application and Equipment Considerations" section of the Center Pivot; Solid Set Sprinkler; Drench; Drip; and Flood Basin, Furrow and Border applications revise the statement as shown: Tanks must be ~~inspected,~~ in good condition~~, and not past their life~~

Issue	Affected Labels	EPA's Comment	Revised Language
			~~expectancy~~ to ensure product does not spill or leak.
52	Amvac Metam, Reg. No. 5481-420 Sodcure 376, Reg. No. 5481-474 Sectagon 42, Reg. No. 61842-6	[NONE]	Under the "Application and Equipment Considerations" section of the Center Pivot; Solid Set Sprinkler; Drench; Drip; and Flood Basin, Furrow and Border applications revise the statement as shown: The system must contain a functional check valve, vacuum relief valve, inspection port, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
53**A**	Sectagon-K54, Reg. No. 61842-7	[NONE]	Under the "Personal Protective Equipment for Respiratory Protection" section, revise the second sub-bullet as shown: – A respirator with a canister approved for pesticides (NIOSH approval number prefix TC-14G) or a canister with any N, R, P or HE prefilter.
53**B**	VAPAM, Reg. No. 5481-466 Sectagon 42, Reg. No. 61842-6	Under the "Personal Protective Equipment for Respiratory Protection" section, revise the second sub-bullet as shown: – A respirator with a canister ~~approved for pesticides (NIOSH approval number prefix TC-14G)~~ with any N, R, P or HE prefilter.	Under the "Personal Protective Equipment for Respiratory Protection" section, revise the second sub-bullet as shown: A respirator with a canister approved for pesticides (NIOSH approval number prefix TC-14G) or a canister with any N, R, P or HE prefilter.
54	Sectagon-K54, Reg. No. 61842-7	[NONE]	Under the "Soil Temperatures" section for the GAPs Shank, Spray Blade, and Rotary Tiller Application methods, delete

Issue	Affected Labels	EPA's Comment	Revised Language
			the phrase "~~point of injection~~" and replace it with "injection depth."
55	Amvac Metam, Reg. No. 5481-420 Sectagon-K54, Reg. No. 61842-7	[NONE]	Under "Soil Moisture" for all GAP application methods add "(field capacity)" after the phrase "soil capacity" throughout the label.
56	Amvac Metam, Reg. No. 5481-420 Sectagon-K54, Reg. No. 61842-7	[NONE]	Under "Soil Moisture" for all GAP application methods revise the following language: The soil moisture in the top six inches of soil must be ~~at~~ between 60% to 80% soil capacity immediately prior to the application.

MATERIAL TO BE ADDED TO JACKET

11-3-09 Image

REG # 61842-6

Description: Label Notification PRN 2007-4

check all that apply		
☐	new stamped accepted label	Send to CSC
☐	new CSF	
☑	notification	

Instructions:

Attach this sheet to the top of **ALL** material sent to the file room (both loose paper and new material in jackets). This sheet will be imaged; a clear description will aid in finding material in the e-jacket. Remove staples from all material. If returning loose paper then hold together with a binder or paper clip. CSFs should be placed in the CSF folder (if returning jacket) or covered with a red CBI sheet (if returning loose paper). Material to be returned to file room should be place in the appropriate bin.

Reviewer's Name: PANZA MAPAO Date: 10/31/09

Phone: 305-7296 Division: PA

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

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Mr. Michael Kellogg
Agent for Tessenderlo Kerley, Inc
C/O Pyxis Regulatory Consulting, Inc
4110 136th ST. NW
Gig Harbor, WA 98332

SEP 15 2009

Subject: Label Notification(s) for Pesticide Registration Notice 2007-4

Dear Registrant:

The Agency is in receipt of your Application(s) for Pesticide Notification under Pesticide Registration Notice (PRN) 2007-4 dated July 28, 2009 for:

EPA Registration 61842-6 Sectagon 42

The Registration Division (RD) has conducted a review of this request for applicability under PRN 2007-4 and finds that the label change(s) requested falls within the scope of PRN-2007-4. The label has been date-stamped "Notification" and will be placed in our records.

Please be reminded that 40 CFR Part 156.140(a)(4) requires that a batch code, lot number, or other code identifying the batch of the pesticide distributed and sold be placed on nonrefillable containers. The code may appear either on the label (and can be added by non-notification/PR Notice 98-10) or durably marked on the container itself.

If you have any questions, please contact me directly at 703-305-6249 or Banza Djapao of my staff at 703-305-7269.

Sincerely,

Linda Arrington
Notifications & Minor Formulations Team Leader
Registration Division (7505P)
Office of Pesticide Programs

PYXIS REGULATORY CONSULTING, INC.

4110 136th St. NW
Gig Harbor, WA 98332

Phone: 253-853-7369
Fax: 253-853-5516
www.PyxisRC.com

July 28, 2009

COURIER DELIVERY

Mary Waller (PM 21)
Document Processing Desk (**NOTIF**)
Office of Pesticide Programs (7504P)
U.S. Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 S. Crystal Drive
Arlington, VA 22202

RE: Tessenderlo Kerley, Inc. – Sectagon 42 (EPA Reg. No. 61842-6)
Revision to Container Disposal Instructions per PRN 2007-4

Dear Ms. Waller,

On behalf of Tessenderlo Kerley, Inc. please find the enclosed label notification revising the container disposal instructions for Sectagon 42 per PRN 2007-4.

In support of this notification submission, we submit the following documents:

1. Completed Application for Registration (EPA Form 8570-1)
2. One (1) copy of the Sectagon 42 labeling with changes tracked
3. One (1) copy of the Sectagon 42 labeling with changes incorporated
4. Certification with Respect to Label Integrity
5. One (1) copy of the Sectagon 42 labeling on CD
6. Letter of Authorization

Please feel free to contact me by phone (253) 853-7369 or by email at Mike@PyxisRC.com if you have any questions or need any additional information.

Sincerely,

Michael Kellogg

Enclosures

cc: Brian Thomassen; Tessenderlo Kerley, Inc.

Please read instructions on reverse before com ng form. Form Approve MB No. 2070-0060, Approval expires 2-28-95

EPA

United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☐ Amendment
☑ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 61842-6	2. EPA Product Manager M. Waller	3. Proposed Classification ☑ None ☐ Restricted
4. Company/Product (Name) Tessenderlo Kerley, Inc. / Sectagon 42	PM# 21	
5. Name end Address of Applicent *(Include ZIP Code)* Tessenderlo Kerley, Inc. c/o Pyxis Regulatory Consulting Inc. 4110 136th St. NW Gig Harbor, WA 98332 ☐ *Check if this is a new address*	6. **Expedited Reveiw.** In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

☐ Amendment - Explein below.
☐ Resubmission in response to Agency letter dated _____
☑ Notificetion - Explain below.
☐ Final printed labels in repsonse to Agency letter dated
☐ "Me Too" Application.
☐ Other - Explein below.

NOTIFICATION
SEP 15 2009

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Notification of label change per PR Notice 2007-4. This notification is consistent with the guidance in PR Notice 2007-4 and the requirements of EPA's regulations at 40 CFR 156.10, 156.140, 156.144, 156.146, and 156.156. No other changes have been made to the labeling or the Confidential Statement of Formula for this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if the amended label is not consistent with the requirements of 40 CFR 156.10, 156.140, 156.144, 156.146, and 156.156, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packeging	2. Type of Container
☐ Yes ☑ No	☐ Yes ☑ No	☐ Yes ☑ No	☑ Metal ☑ Plastic ☐ Glass ☐ Paper ☐ Other (Specify) _____
Certification must be submitted	If "Yes" Unit Packaging wgt. / No. per container	If "Yes" Package wgt / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
☑ Label ☑ Container	50-250 gallon, bulk	☑ On Label ☐ On Labeling accompanying product

6. Manner in Which Label is Affixed to Product ☑ Lithograph ☑ Paper glued ☑ Stenciled ☐ Other _____

Section - IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Michael Kellogg	Agent	(253)-853-7369

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowlingly false or misleading stetement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received **(Stamped)**

2. Signature Michael Kellogg	3. Title Agent
4. Typed Name Michael Kellogg	5. Date 7/28/09

EPA Form 8570-1 (Rev. 3-94) Previous editions are obsolete. White - EPA File Copy (original) Yellow - Applicant Copy

NOTIFICATION
SEP 1 5 2009

SECTAGON 42®

FUMIGANT SOLUTION FOR ALL CROPS

For suppression of: Nematodes, Fungi, Bacteria, Weeds, Weed seeds and Volunteer seeds.

42.2% SODIUM METHYLDITHIOCARBAMATE

ACTIVE INGREDIENT:
Sodium methyldithiocarbamate (anhydrous) 42.2%
OTHER INGREDIENTS: 57.8%
TOTAL: 100.0%

Contains 4.22 lbs. active ingredient per gallon.

EPA Reg. No. 61842-6 **EPA Est. No.**

KEEP OUT OF REACH OF CHILDREN
DANGER PELIGRO

READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH LABEL WARNINGS AND DIRECTIONS

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

FIRST AID

If 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 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 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 or doctor. Do not give anything by mouth to an unconscious person.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-866-374-1975 for emergency medical treatment information.

NOTE TO PHYSICIAN

Probable mucousal damage may contraindicate the use of gastric lavage.

Manufactured by:
Tessenderlo Kerley, Inc.
2255 North 44th Street, Suite 300
Phoenix, Arizona 85008-3279
1-800-525-2803

Net Contents:

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
DANGER

- Corrosive: causes skin damage. May be fatal if absorbed through the skin. Do not get on skin or clothing.
- Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals.
- Harmful if swallowed.
- Harmful if inhaled. Irritating to eyes, nose, and throat. Avoid breathing vapor or spray mist.
- Irritating to eyes. Do not get in eyes.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

(1) Handlers Performing Direct-Contact Tasks

Direct-contact tasks include:

- mixing, loading, or fumigant transfer with or without dry-disconnect fittings.
- equipment calibration or adjustment
- equipment cleanup and repair
- product sampling
- application or soil-sealing outside an enclosed cab
- any activity less than 6 feet from an unshielded pressurized hose containing this product
- spill cleanup
- removal of tarp or plastic film
- rinsate disposal
- cleanup of small spills
- preparing containers for aeration
- any other handling task not otherwise listed in (2) or (3) below

Applicators and other handlers performing direct-contact activities must wear:

- Coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves
- Chemical-resistant footwear plus socks
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, or when mixing, loading, or transferring without dry-disconnect fittings
- Face-sealing goggles, unless full-face respirator is worn
- A respirator with either 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 N, R, P or HE prefilter.

(2) Handlers in Enclosed Cabs

Applicators and other handlers in enclosed cabs must wear:

- Coveralls
- Shoes and socks

Plus, if pungent, rotten-egg odor of this product can be detected inside the enclosed cab, the handlers in the cab must wear:

- Face-sealing goggles, unless full-face respirator is worn
- A respirator with either 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 N, R, P or HE prefilter.

In addition, the PPE specified in (1) for direct-contact activities must be immediately available in the enclosed cab and must be worn if the handler leaves the enclosed cab to perform any direct-contact activity.

The enclosed cab must meet the requirements listed in the Worker Protection Standard (WPS) for

agricultural pesticides 40 CFR 170.240(d)(5).

(3) Handlers in Treated Areas While Entry is Restricted

While entry is restricted (see "Entry Restrictions" in the Agricultural Use Requirements box elsewhere in this labeling), only the following handling tasks may be performed in a treated area outdoors:

- Assessing/adjusting the soil seal
- Assessing pest control, application technique, or application efficacy
- Sampling air or soil for this product

All other tasks are prohibited until the entry restriction is over.

Handlers performing the above tasks must wear:

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

Plus: If pungent, rotten-egg odor of this product can be detected outdoors, handlers must wear:

- Face-sealing goggles (unless full-face respirator is worn) and
- A respirator with either 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 N, R, P or HE prefilter.

USER SAFETY REQUIREMENTS

1. Respirator Requirements:

When a respirator is required for use with this product, the following criteria must be met:

a. Cartridges or canisters must be replaced daily or when odor or irritation from this product becomes apparent, whichever is sooner.

b. Respirators must be fit-tested and fit-checked using a program that conforms to OSHA's requirements (described in 29 CFR Part 1910.134).

2. Dispose of Contaminated Clothing:

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with liquid from this product. Do not reuse them.

3. Clean and Maintain PPE: Follow manufacturer's instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separate from other laundry. Wash PPE after each day's use.

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. For terrestrial uses, 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 apply where runoff is likely to occur. Do not apply when weather conditions favor drift from areas treated. Do not contaminate water when disposing of equipment wash water. Apply this product only as specified on this label.

USE PRECAUTIONS

Keep off desirable lawns and plants. Do not apply within 3 feet of the drip line of desirable plants, shrubs or trees. Do not use in confined areas without adequate ventilation OR where fumes may enter nearby

dwellings. Do not use in greenhouses. Keep container tightly closed when not in use. Do not store near feed or food.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in a cool, dry place, keep container closed when not in use. Do not store below 0° F. Product crystallizes at lower temperatures. Warm or store at higher temperatures and mix to redissolve crystals and assure uniformity before use.

Do not stack more than three drums high. Leaking or damaged drums should be placed in overpack drums for disposal. Spills should be absorbed in sawdust or sand and disposed of in a sanitary landfill. Keep container closed when not in use.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instruction, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL:
[NON-REFILLABLE CONTAINERS]

Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Then offer for recycling if available 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.

[REFILLABLE CONTAINERS]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available 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.

NOTE OF WARNING: CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER!

DIRECTIONS FOR USE

For suppression of: Nematodes, Fungi, Bacteria, Weeds, Weed seeds and Volunteer seeds.

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.

Use only according to label. Do not apply this product through any irrigation system unless the labeling on chemigation is followed.

CALIFORNIA ONLY: Application must be in compliance with Technical Information Bulletin - California "Guidelines For All Application Methods For Metam Sodium in California." This information bulletin may be obtained from your local pesticide dealer or a metam-sodium registrant. **Proposition 65 (CA Only):** WARNING: This product contains chemicals known to the State of California to cause cancer, birth

defects or other reproductive harm. **22 California Code of Regulations § 12601(d)(3).**

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

ENTRY RESTRICTIONS

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 handling task permitted on this labeling is PROHIBITED from the start of application until 48 hours after application. In addition, if tarps are used for the application, nonhandler entry is prohibited while tarps are being removed.

NOTIFICATION: Notify workers of the application by warning them orally and by posting warning signs. The signs must state:

(1) "DANGER/PELIGRO," (2) "PESTICIDES/PESTICIDAS," (3) KEEP OUT/NO ENTRE," (4) the date and time of fumigation, (5) SECTAGON 42®, 42.2% SODIUM METHYLDITHIOCARBAMATE, and (6) "name, address, and telephone number of the applicator." Post the WPS sign in compliance with 40 C.F.R. Part 170, and follow the WPS requirements pertaining to location, legibility, color, size, and timing of posting and removal. Outdoors: Post the fumigant warning signs at entrances to treated areas.

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

READ ALL LABEL DIRECTIONS BEFORE USING

PRODUCT INFORMATION

SECTAGON 42® is a water-soluble liquid. When applied to properly prepared soil, the liquid is converted into a gaseous fumigant. After a sufficient waiting period, the gas dissipates, leaving the soil ready for planting. SECTAGON 42® is recommended for the suppression of weeds, plant parasitic nematodes, and soilborne fungi that cause reductions in the yield and quality of ornamental, food and fiber crops.

SECTAGON 42® will suppress only those pests in the fumigation zone at the time of treatment. Recontamination may occur subsequent to the fumigant's dissipation from the soil.

Weeds and germinating weed seeds that are suppressed include Annual bluegrass, Bermuda grass, Chickweed, Dandelion, Ragweed, Henbit, Lambsquarter, Amaranthus sp. (Pigweed, Careless weed), Watergrass, Johnsongrass, Nutgrass, Wild morningglory, Purslane, Barnyardgrass, Crabgrass, Groundsel, Prickly lettuce, Pineappleweed, Nettleaf, Goosefoot, Nightshade, Shepherdspurse, Stinging nettle, Malva, London rocket, and Fiddleneck. The best weed suppression is obtained when SECTAGON 42® is applied to weeds that are actively growing.

The soil-borne plant pathogenic fungi suppressed include species of Verticillium, Rhizoctonia, Pythium, Phytophthora, Sclerotinia.

The plant parasitic nematodes which SECTAGON 42® suppresses include Root knot, Lesion, Dagger, Lance, Needle, Pin, Reniform, Stunt, Stubby root, Sting and Spiral.

Note: SECTAGON 42® will only suppress nematodes that are in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that SECTAGON 42® achieves at the time of application. In Oregon and Washington, SECTAGON 42® will only suppress Miloidogyne Chitwoodi. Other pests suppressed include symphilids or garden centipedes.

TREATMENT GUIDELINES

For optimum results from soil fumigation with SECTAGON 42® certain procedures should be observed at designated times in the treatment program. Described in this section are important guidelines for each of

the four stages of the treatment process:

Planning a SECTAGON 42® Application

Preparing a Field for Application

Applying SECTAGON 42®

Preparing for Planting after Application of SECTAGON 42®

Your sales representative will help you select the best treatment program for your particular needs.

PLANNING A SECTAGON 42® APPLICATION

Time of Application

Apply SECTAGON 42® after harvest and 14 to 21 days before a new crop is planted. In some areas of North America, fall applications are preferred because the fumes dissipate over the winter, allowing planting to begin as soon as favorable springtime conditions arrive.

Application Rate

Apply 1 to 80 gallons of SECTAGON 42® per treated acre depending on crop, target pest, and soil properties. Soil properties to consider when determining the application rate include the depth of soil to be treated, soil texture and percent organic matter.

Application in Tank Mix with Liquid Fertilizer

SECTAGON 42® may be injected in a mixture with liquid fertilizers. Since the composition of liquid fertilizers vary considerably, the physical compatibility of each fertilizer/SECTAGON 42® tank mix should be checked by using the following procedure:

Mix a small quantity of SECTAGON 42® and liquid fertilizer in a glass container. SECTAGON 42® and fertilizer should be mixed in the same ratio as they will be applied to the field (i.e., if 40 gallons of SECTAGON 42® and 40 gallons of liquid fertilizer are to be applied per acre, then SECTAGON 42® and fertilizer should be mixed in the jar in a 40:40 or 1:1 ratio). Agitate the liquids to attain a complete mixture.

If a uniform mix cannot be made, the mixture should not be used. If the mixture remains uniform for 30 minutes, the combination may be used. Should the mixture separate after 30 minutes, but readily remixes uniformly with agitation, the mixture can be used if adequate agitation is maintained in the tank.

DO NOT PLACE CAPS ON JAR, AS INCOMPATIBLE MIXES MAY EVOLVE HYDROGEN SULFIDE GAS.

USE PROMPTLY AFTER MIXING WITH WATER OR FERTILIZER. DO NOT ALLOW SOLUTION TO STAND.

Flush all equipment with water after each day's use. Disassemble valves and clean carefully.

Target Pest and Depth of Treatment

For suppression of weeds and fungi causing seed or seedling diseases, treatment of only the top 1 to 4 inches of soil may be required. For suppression of nematodes and fungi which occur throughout the rhizosphere, treatment to depths of greater than 4 inches may be required. For a given soil type, the required application rate will increase proportionately with the depth of treatment required.

For example, if 25 gallons of SECTAGON 42® per acre is required to treat 4 inches, then 50 gallons of SECTAGON 42® will be required to treat to a depth of 8 inches. Choose the appropriate application method to distribute SECTAGON 42® evenly throughout the soil to the required depth.

Organic Matter in the Soil

Plant material under the soil surface should be thoroughly decomposed before SECTAGON 42® is applied. Because of the absorbing effect of humus, soils with high levels of organic matter under the surface require higher than usual doses of SECTAGON 42®. For example, muck soils require twice the amount of fumigant that would be used in mineral soils.

Soil Texture

Application rates will vary with the soil texture. For instance, clay soils require more SECTAGON 42® than light sandy soil.

PREPARING A FIELD FOR APPLICATION

Soil Cultivation

Cultivate the soil thoroughly before treatment, breaking up all large clods. If the soil crusts following pretreatment irrigation, lightly cultivate it again before treatment with SECTAGON 42®.

Soil Temperature During Treatment

At the time of fumigation, the soil temperature should be in the range of 40°F-90°F (4°-32°C) at a depth of 3 inches.

To prevent rapid evaporation of the product from the soil avoid treating soil during times of the day when soil temperatures exceed 90° F (32° C). Instead, make the application during the early morning hours when the soil temperature is coolest.

Measuring the Soil Moisture

Application should be made under "good seed bed moisture condition", that is, the soil moisture should be about 50-80% of field capacity. As a simple field test, squeeze a handful of soil into a ball and then gently try to break it apart with your fingers. If it breaks easily, the soil moisture content is sufficient. If it will not break apart or if water can be squeezed out, it is too wet. When necessary, 1 to 2 weeks prior to treatment sprinkle or flood irrigate the soil to increase the moisture content. The soil must be moistened to at least the desired treatment depth.

Phytotoxicity

SECTAGON 42® is phytotoxic. Protect valuable, non-target plants by stopping soil applications of SECTAGON 42® at least 3 feet short of the drip line of trees, shrubs, and other desirable plants. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

APPLYING SECTAGON 42®

Use of Diluted SECTAGON 42®

Do not store the diluted product. Use SECTAGON 42® promptly after it has been mixed with water. In dilute solutions in water SECTAGON 42® decomposes over a period of days. Although SECTAGON 42® is stable in its concentrated form, it is unstable in acid dilutions.

Odors During or After Application

Strong odors during or after application are a signal that the fumigant is escaping and needs to be sealed in the soil. If increasingly strong odors are occurring, the application should be stopped immediately and not resumed until the source of the odor problem is identified and corrected. For sprinkler application or whenever possible with other application methods, a water seal should be applied immediately to the treated areas of the field.

Sealing SECTAGON 42® in Soil

To be most effective, SECTAGON 42® should be sealed in the soil. Sealing methods include applying irrigation water or plastic tarpaulins and packing soil with a roller or drag. Tarpaulins should be spread loosely over the treated area and secured to prevent removal by wind. They should remain in place for at least 48 hours. Seven days after treatment, the sealed area should be cultivated to a depth of 2 inches to aerate the soil. When tarpaulins are used to seal the soil, wait at least 21 days before planting.

CHEMIGATION–GENERAL PROCEDURES

When applying by chemigation methods the following precautions must be observed.

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move; flood (basin); furrow; border, or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in

place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Posting of areas to be chemigated is required when 1) any part of a treated area is within 300 feet of sensitive areas such as residential areas, labor camps, businesses, day care centers, hospitals, in-patient clinics, nursing homes or any public areas such as schools, parks, playgrounds, or other public facilities not including public roads, or 2) when the chemigated area is open to the public such as golf courses or retail greenhouses.

Posting must conform to the following requirements: Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive areas. When there are no usual points of entry, signs must be posted in the corners of the treated area and in any other location affording maximum visibility to sensitive areas. The printed side of the sign should face away from the treated area toward the sensitive areas. The signs shall be printed in English. Signs must be posted prior to application and must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place indefinitely as long as they are composed of materials to prevent deterioration and maintain legibility for the duration of the posting period.

All words shall consist of letters of at least 2 1/2 inches tall, and all letters and the symbol shall be a color which sharply contrasts with their immediate background. At the top of the sign shall be the words KEEP OUT, followed by an octagonal stop sign symbol of at least 8 inches in diameter containing the word STOP. Below the symbol shall be the words PESTICIDES IN IRRIGATION WATER.

This sign is in addition to any sign posted to comply with the Worker Protection Standard.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

NOTE: Tessenderlo Kerley, Inc. does not encourage connection of chemigation systems to public water systems. The following information is provided for users who have evaluated all alternative application and water source options before choosing to make such a connection.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank measuring of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must contain a functional, normally closed solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, controls on the pesticide injection pump are also needed when the water pressure decreases to the point where pesticide distribution is adversely affected.

System must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

SPRINKLER SYSTEM CHEMIGATION

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back toward the injection pump.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid backflow.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

FLOOD (BASIN), FURROW OR BORDER IRRIGATION SYSTEM CHEMIGATION

Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.

Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not dilute in supply tanks. Agitation of supply tank recommended after freezing.

DRIP CHEMIGATION

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm

pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

NOTICE: Do not operate irrigation systems without safety valves or other devices to prevent back siphoning of SECTAGON 42® into water sources. Irrigation water treated with SECTAGON 42® should be maintained on the treated area until the water is absorbed by the soil. The tank containing SECTAGON 42® must be connected to the discharge side of the irrigation pump or other pressurized equipment attached to the irrigation line. Do not apply in irrigation systems that result in overlapping application of SECTAGON 42®. Do not apply when weather conditions favor drift from target areas.

PREPARING FOR PLANTING AFTER APPLICATION OF SECTAGON 42®

Effect of Rain

If a SECTAGON 42® application is rained on less than 24 hours after treatment, lack of suppression at and near the soil surface may result.

Recontamination

Precautions must be taken to prevent recontamination of treated soil with weed seeds, plant pathogenic fungi and plant parasitic nematodes. Use clean seeds and/or plants. Before farm equipment is driven into the treated area, it should be rinsed free of the untreated soil from other fields.

Interval Between Treatment and Planting

Because SECTAGON 42® can be harmful to germinating and/or living plants, an appropriate interval must be observed between soil fumigation and planting. On well-drained soils which have a light to medium texture and which are not excessively wet or cold following application, planting can begin 14 to 21 days after treatment. If soils are heavy or especially high in organic matter, or if they remain wet and or cold (below 60° F or 15° C) following application, a minimum interval of 30 days should be observed.

Aeration before planting

Soils including soils high in clay or organic matter, should be allowed to aerate and dry thoroughly after treatment with SECTAGON 42® During cold and/or wet weather, frequent shallow cultivation can aid the escape of SECTAGON 42® from the soil.

Testing for Dissipation of SECTAGON 42®

After the waiting period has passed, if there are any questions about the complete escape of SECTAGON 42® from the soil, transplant a seedling into the treated soil. If the plant develops normally without any signs of chemical injury, crop planting can begin.

USES, APPLICATION METHODS & RATES
FIELD APPLICATION WHERE ENTIRE AREA IS BEING TREATED

POWER ROLL SEAL METHOD (NON-TARP)

Use a RO-TO-VATE & ROLL Applicator only. Contact your local agricultural extension service, distributor or the manufacturer for approved RO-TOVATE & ROLL Application specifications.

When to Treat: Apply SECTAGON 42® 2 to 6 weeks prior to planting, whenever soil type and conditions permit. For best results with annual crops, treat the soil each year. Do not use SECTAGON 42® to treat any type of soil when it is cold and/or wet.

Soil Preparation: SECTAGON 42® gives best results when conditions permit thorough diffusion of the fumigant through the soil and the soil surface can be power roll sealed to prevent excessive fumigant loss during the exposure period. The soil should be prepared to seed bed condition, free of dry clods, relatively low in undecomposed organic matter with a level soil surface. A smooth soil surface is required for uniform distribution of SECTAGON 42® during incorporation.

Soil Moisture: Soil moisture should range between 30-50% of field capacity.

Soil Temperature: Soil temperature should range between 40° to 90° F at the depth of incorporation. Cool soil temperature and high soil moisture will slow diffusion of fumigant and planting date/time may be delayed. Hot soil temperature and low soil moisture allows extremely rapid diffusion of fumigant and hinders a good soil seal.

Application: Use undiluted SECTAGON 42® to the desired depth below the final soil surface. (Contact your dealer or the manufacturer for the specifications for suitable application equipment).

IMPORTANT SOIL TREATMENT PRECAUTIONS

Crops to be hilled: For crops that require soil movement (hilling) prior to or after planting, incorporate SECTAGON 42® to a depth that will allow the tillage required to occur without penetrating below the depth of treatment.

Crops to be bedded: For crops to be bedded, care must be taken that exposed sides of raised beds are not cracked or open compared to the power rolled surface. If necessary, add power rollers of the required height or other sealing equipment to the ends of the bedding equipment to seal the sides.

Note: The use of SECTAGON 42® for the suppression of weeds, weed seeds and shallow inhabiting soil fungi requires that NO SOIL CULTIVATION OCCUR FOLLOWING TREATMENT until time of planting.

This method of treating soil with SECTAGON 42® will not be effective for the suppression of nematodes outside the treated zone. This method of SECTAGON 42® application can be used in combination with other soil fumigants to suppress the nematodes persisting in the surface 1 to 6 inches of soil normally not suppressed with injected soil fumigants.

Zone of treatment will be limited by diameter of applicator. If pest is deeper than applicator can treat to, use a different method. For further information contact your local agricultural extension service or the manufacturer.

SOIL INJECTION

Use injectors (shanks, blades, fertilizer wheels, plows, etc.) to apply SECTAGON 42® at the rate of 15 to 75 gallons per acre into well prepared soil. Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil.

Example: apply through injectors placed 4 inches below surface and 5 inches apart.

SPRINKLER SYSTEM

Use only those sprinkler systems which give large water droplets to prevent excess loss. Use 37.5 to 75 gallons SECTAGON 42® per acre for suppression of nematodes and fungi at a depth of 24 inches. For suppression of weeds and fungi at a depth of 8 inches or less, use 15 to 75 gallons per acre. Inject the SECTAGON 42® in enough water to reach to desired treatment depth. The product should be continuously metered into the irrigation system throughout the entire application period. Flush the system with only enough water to clear lines. If the soil surface dried quickly, reseal it with 15 minutes of water once a day for the next day or two.

When using a sprinkler application method, apply SECTAGON 42® only when the air temperature is below 90° F (32° C). This precaution is recommended to guard against evaporation of the product. Either low humidity or high winds can also cause the evaporation of SECTAGON 42® before it can be drenched into the soil. To prevent wind drift of the fumigant, apply only when wind conditions are suitable.

To prevent runoff of treatment solution during sprinkler application, do not exceed the infiltration rate of the solution into the soil. Should runoff occur, isolate it from growing crops and water sources. Once collected, reapply it to the treated area. See use precautions in "CHEMIGATION" section.

CHECK OR FLOOD IRRIGATION

Meter SECTAGON 42® at a steady rate into water during irrigation. Use 40 to 75 gallons of SECTAGON 42® per acre, depending upon the kind of pest and depth desired, in 3 to 18 inches of water per acre. See use precautions in "CHEMIGATION" section.

DISC APPLIED METHOD

Spray SECTAGON 42® immediately in front of disc. Use 15 to 75 gallons per acre. Follow immediately with a roller to smooth and compact the soil surface.

DRIP IRRIGATION

SECTAGON 42® may be injected into drip irrigation systems prior to planting. The area must be calculated in accordance with the size of the band treated. Apply 40 gallons per broadcast acre in one acre inch of water (27,000 gallons). The resulting concentration is 700 ppm on a weight basis. (Example: if the emitters irrigate 10% of each acre then use 5 gallons SECTAGON 42® in 2,700 gallons water). Inject continuously. Do not slug treat. See use precautions in "CHEMIGATION" section.

APPLICATION TO BED OR ROWS

POWER ROLL SEAL METHOD (NON-TARP)

Use a modified RO-TO-VATE & ROLL Applicator only. Contact your local agricultural extension service, distributor or the manufacturer for approved RO-TO-VATE & ROLL Applicator specifications.

When to treat: Apply SECTAGON 42® 2 to 6 weeks prior to planting whenever soil type and conditions permit. For best results with annual crops, treat the soil each year. Do not use SECTAGON 42® to treat any type of soil when it is cold and/or wet.

Soil Preparation: SECTAGON 42® gives best results when conditions permit thorough diffusion of the fumigant through the soil and the soil surface can be power roll sealed to prevent excessive fumigant loss during the exposure period. The soil should be prepared to seed bed conditions, free of dry clods, relatively low in undecomposed organic matter with a level soil surface. A smooth soil surface is required for uniform distribution of SECTAGON 42® during incorporation.

Soil Moisture: Soil moisture should range between 30 to 50% of field capacity.

Soil Temperature: Soil temperature should range between 40° to 90°F at the depth of incorporation. Cool soil temperature and high soil moisture will slow diffusion of fumigant and planting date/time may be delayed. Hot soil temperature and low soil moisture allows extremely rapid diffusion of fumigant and hinders a good soil seal.

Application: Use undiluted SECTAGON 42.® Apply with suitable application equipment that will ensure incorporation of SECTAGON 42® to the desired depth below the final soil surface. (Contact your dealer or the manufacturer for the specifications for suitable application equipment).

IMPORTANT SOIL TREATMENT PRECAUTIONS

Crops to be hilled: For crops that require soil movement (hilling) prior to or after planting, incorporate SECTAGON 42® to a depth that will allow the tillage required to occur without penetrating below the depth of treatment.

Crops to be bedded: For crops to be bedded, care must be taken that exposed sides of raised beds are not cracked or open compared to the power rolled surface. If necessary, add power rollers of the required height or other sealing equipment to the ends of the bedding equipment to seal the sides.

Note: The use of SECTAGON 42® for the suppression of weeds, weed seeds and shallow inhabiting soil fungi requires that NO SOIL CULTIVATION OCCUR FOLLOWING TREATMENT until time of planting.

This method of treating soil with SECTAGON 42® will not be effective for the suppression of nematodes outside the treated zone. This method of SECTAGON 42® application can be used in combination with other soil fumigants to suppress the nematodes persisting in the surface 1 to 6 inches of soil normally not suppressed with injected soil fumigants.

Zone of treatment will be limited by diameter of applicator. If pest is deeper than applicator can treat to, use a different method. For further information contact your local agricultural extension service or the manufacturer.

SOIL INJECTION

SECTAGON 42® at the rate of 50 to 75 gallons per treated acre (1 to 1.5 pints per 100 sq. ft.), may be injected into preformed plant beds following the directions given above under soil injection. If a wider treated band is desired, space 2 or more injectors (shanks, blades, fertilizer wheels, etc.) at desired intervals to cover the desired treating width. Seal immediately.

If SECTAGON 42® is injected into established plant beds through plastic tarps to terminate growth of a previous crop, and to fumigate the bed in preparation for planting a subsequent crop, the terminated crop

should not be used for any food or feed purposes after SECTAGON 42® has been applied.

SOIL COVERING METHOD
(BED-OVER METHOD)

SECTAGON 42® may be sprayed or dripped onto the soil immediately ahead of bed-shaping equipment. Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil. The recommended rate of SECTAGON 42® is 40 to 75 gallons per acre of treated soil, approximately equivalent to .5 to 1.5 pints per 100 linear ft. of 12-inch wide row.

DRIP IRRIGATION

During pre-irrigation, check drip tape for uniform distribution and repair if necessary. Apply 15 to 75 gallons SECTAGON 42® per treated acre (0.25 to 1.5 pints per 100 sq. ft. of treated soil) using enough water to thoroughly wet entire desired treatment zone. During the entire irrigation period, inject SECTAGON 42® continuously into drip line as close as possible to treatment area. Two or more lines per bed may be needed to ensure full coverage.

Application must be continuously supervised. This is very important: weed suppression will not be satisfactory if too much water is applied. An adequate concentration of SECTAGON 42® must be present at the time of weed seed germination in order to be effective. Further directions for use are as follows: Ground must be in seed-bed condition, no clods larger than ½" in diameter. Beds must be listed, shaped and ready for planting. Soil moisture must be at 50% of field capacity in the top 2 to 3 inches at time of SECTAGON 42® application. See use precautions in "CHEMIGATION" section.

DRENCH METHOD

SECTAGON 42® may be applied to finished beds in enough water to soak at least 2 inches deep for suppression of shallow seeded weeds. To avoid contamination by untreated soil, do not disturb the treated area. Apply 15 to 75 gallons of SECTAGON 42® per treated acre.

ADDITIONAL RECOMMENDATIONS

TOBACCO PLANT BEDS

Fall applications are recommended wherever possible. Read and follow DIRECTIONS FOR USE carefully. Treatment in the South should generally be made before November 30.

A. TARP METHOD: Prepare the bed 5 to 7 days before application to insure best conditions for weed seed germination and fumigant action of SECTAGON 42.® The bed should be free of clods, level and in good tilth. Apply 1 to 1¼ gallons of SECTAGON 42® in a minimum of 40 gallons of water per 100 sq. yds. Apply uniformly over the entire bed. Cover the bed immediately with a plastic cover. Keep covered no less than one day, but no more than two days. The cover need not be tented, but should be secured to prevent wind from uncovering the treated area. Seven days after date of SECTAGON 42® application, loosen the treated soil to a depth of 2 inches. Do not seed tobacco earlier than 21 days after SECTAGON 42® application.

B. DRENCH METHOD: Apply 2 gallons SECTAGON 42® in 150 to 200 gallons of water per 100 sq. yd. Application may be made with sprinklers, sprayers with nozzles or any suitable equipment. Follow directions given above for seed bed treatment.

SYMPHYLID SUPPRESSION

Soil should be in good seed bed condition to a depth of 8 to 10 inches. Maintain adequate moisture during spring season. Treat during July-August when symphylids are in the upper soil surface. Apply 15 gallons SECTAGON 42® per acre using blade or chisel injector. Inject below level of symphylid concentration, usually 6 to 8 inches. Pack soil immediately after application.

NOTE: SECTAGON 42® will only suppress nematodes which are in the fumigated zone at the time of

treatment.

POTATOES

For suppression of potato pests such as Root knot nematodes, Weed seeds, Verticullum dahlias (Early maturity disease).

Apply 30 to 75 gallons SECTAGON 42® per acre using injectors (shanks, blades, fertilizer wheels, plows, etc.) Follow immediately with a bedshaper, roller press wheel or similar device or cover with an adequate amount of soil to seal the fumigant into the soil.

Sprinkler system preplant application - Use 37.5 to 75 gallons of SECTAGON 42® per acre. Inject into a sprinkler system that can deliver an even water distribution for the area being treated. Inject all of the SECTAGON 42® needed for the area covered and apply in enough water to reach the desired treatment depth. Soil temperature should be in the range of 40° F to 90° F in the treatment zone. Soil moisture immediately prior to treatment must be 50 to 80% of field capacity down to 24" level. SECTAGON 42® may be applied where crop stubble or vegetation exists without prior fillage, provided there is adequate soil penetration of SECTAGON 42.® Soil condition must facilitate even moisture penetration without runoff. Do not apply when plants are present. See use precautions in "CHEMIGATION" section.

NOTE: SECTAGON 42® will suppress Root knot nematodes in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that SECTAGON 42® achieves at the time of application.

If high numbers or deep nematodes are identified, anticipate nematodes to build up throughout the growing season. Some damage will occur unless additional action is taken.

SECTAGON 42® has no soil residual and reinfestation of a field can occur from numerous sources such as deep nematode populations, seed pieces, irrigation water, equipment contamination and blowing wind.

EARLY MATURITY DISEASES OF POTATOES IN OREGON

Apply 30 gallons SECTAGON 42® per acre using injectors (shanks, blades, fertilizer wheels, plows, etc.) Follow immediately with a bedshaper, roller press wheel or similar device or cover with an adequate amount of soil to seal the fumigant into the soil.

NOTE: SECTAGON 42® will suppress Root knot nematodes in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that SECTAGON 42® achieves at the time of application.

MINT

Verticilium wilt control.

When infestation is limited to small spots in a field, spread can be reduced by treating the soil with 75 gallons SECTAGON 42® per treated acre (1½ pints per 100 sq. ft.) using injector blade or thin shank injector rig with injectors spaced at intervals to cover the desired treating width.

WHEAT AND BARLEY

For suppression of certain root diseases caused by Early season soil fungi – before applying SECTAGON 42® cultivate the area to be treated to break up clods. Apply 2 to 7.5 gallons per treated acre 14 to 21 days before planting. SECTAGON 42® may be diluted with water or non-acidic liquid fertilizer immediately before applying. Inject SECTAGON 42® to a depth of 5 to 8 inches into moist soil. Space injector shanks at intervals to cover the desired treating width.

Do not mix SECTAGON 42® with acidic fertilizer or other acidic solutions. For best results, moisture in the treated zone should be 50% of field capacity or more.

Use only in areas which receive 15 or more inches of rainfall per year.

PEANUTS

Cylindrocladlium Black Rot (CBR) Suppression:

Apply SECTAGON 42® at the following rates:

CBR-resistant cultivar (NC8C): 7.5 gallons per treated acre or 4 pints per 1,000 feet of treated row CBR-susceptible peanut cultivars (Florigant, GK-3, NC-5 Keel 29): 15 gallons per treated acre or 8 pints per 1,000 feet of treated row.

CBR-highly susceptible cultivars (VA 81B, NC7): use of SECTAGON 42® is not recommended.

Soil Preparation: Before applying SECTAGON 42,® residue from the previous crop should be decomposed (enhanced by fall discing) and plowed under in the spring with mold-board plow. Soil incorporated preplant herbicides must be applied before application of SECTAGON 42®.

Application: Apply SECTAGON 42® with a gravity flow regulator through chisel-type or counter-type applicators. Center each applicator, one per row, in front of a bedshaper to mark the location of chemical deposition. SECTAGON 42® should be deposited 6 to 8 inches below the soil surface of beds. Bed and applicator spacing should coincide with row spacing at planting. Soil temperatures must be in the range of 60° F to 90°F at 3 inch depth before application.

Tillage and Planting after Application: Do not mix treated soil with untreated soil by tillage or other cultural practices. Plant peanuts in the center of treated beds no earlier than 14 days following application of SECTAGON 42® An at-planting nematicide treatment will be necessary in fields with heavy infestation of Root knot, Ring and/or String nematode.

FOR SUPPRESSION OF SPECIFIC ORCHARD DISEASES (SUCH AS SPECIFIC APPLE REPLANT DISEASE)

Use 62 to 77 gallons of Sectagon 42® per treated acre. It is best to have the replant site prepared to a planting consistency which includes irrigating to 70% field capacity before Sectagon 42® application. Treatment can be made in the Fall or Spring before planting but Fall application is the preferred timing. Spring application can be riskier because the interval between treatment and planting is critical; see CAUTIONS listed below. Do not harvest fruit within one (1) year of application.

There are three application techniques that may be used: 1) Entire orchard site, 2) Individual tree row site, and 3) Individual tree plant site.

Entire orchard site: Inject the desired amount of Sectagon 42® into a sprinkler system to treat the entire replant site. Figure the irrigation schedule required to cover the desired treatment depth. Start the irrigation system and inject the Sectagon 42® one-third to one-half way through the cycle making sure to leave enough time at the end of the cycle to seal the application with plain water.

Individual tree row site: Two methods of application may be used to apply Sectagon 42® to individual tree row sites: Method One is to apply Sectagon 42® through a portable irrigation system such as a sprinkler or drip system; Method Two is to apply the desired amount of Sectagon 42® through a weed sprayer while the irrigation system is running. For either method and after identifying the position of the future tree row site, apply Sectagon 42® one-third to one-half way through the required irrigation cycle leaving enough time at the end of the cycle to apply plain water, sealing the Sectagon 42® in the ground.

Individual tree plant site: Use 18 to 24 fluid ounces of Sectagon 42® per 100 gallons of water. Use 16 gallons of this solution in a 4 by 4 foot planting hole. Water and product amount adjustments can be made to accommodate different size planting holes to ensure product movement to desired depth. Replace dirt removed.

TARPING: Tarping of replant sites is required when near (1/2 mile) to populated areas, such as schools, hospitals, commercial or office buildings, factories, residential areas, etc. Tarping is not required if treatment is farther than 1/2 mile from such populated areas.

CAUTIONS: INTERVAL BETWEEN TREATMENT AND PLANTING

Because Sectagon 42® is harmful to living plants, an appropriate interval must be observed between Sectagon 42® application and planting. On well-drained soils which have a light to medium texture and are not excessively wet or cold following application, planting can begin 21 to 30 days after treatment. If soils are heavy or especially high in organic matter or if they remain wet and/or cold (below 60 degrees F) following application, a minimum interval of 30 to 45 days should be observed. Where the dosage approaches the 77 gallons per acre rate, wait at least 60 days.

HARVEST OF ANY FRUIT WITHIN ONE (1) YEAR OF TREATMENT

IS PROHIBITED.

CONDITIONS OF SALE–LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES

The directions on this label are believed to be reliable and should be followed carefully. Insufficient control of pests and/or injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions, the failure to follow the label directions, or good application practices, all of which are beyond the control of Tessenderlo Kerley, Inc., or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. Tessenderlo Kerley, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use, subject to the factors noted above which are beyond the control of Tessenderlo Kerley, Inc. Tessenderlo Kerley, Inc. makes no other warranties or representations of any kind, express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose. The exclusive remedy against Tessenderlo Kerley, Inc. for any cause of action relating to the handling or use of this product is a claim of damage, and in no event shall damages or any other recovery of any kind against Tessenderlo Kerley, Inc. exceed the price of the product which causes the alleged loss, damage, injury, or other claim. Tessenderlo Kerley, Inc. shall not be liable and any and all claims against Tessenderlo Kerley, Inc. are waived, for special, indirect, incidental, or consequential damages or expense of any nature, including, but not limited to, loss of profits or income, whether or not based on the negligence of Tessenderlo Kerley, Inc. breach of warranty, strict liability in tort, or any other cause of action. Tessenderlo Kerley, Inc. and the seller offer this product, and the buyer and users accept it, subject to the foregoing conditions of sale and limitations of warranty, liability and remedies.

EPA 20090902

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

CERTIFIED MAIL

MAY 13 2010

Dawn Kominski
Tessenderlo Kerley, Inc.
PO Box 15627
Phoenix, AZ 85060

Subject: Sectagon 42
EPA Reg. No. 61842-6
RED Mitigation Amendment dated October 1, 2009
EPA Decision Number D432736

Dear Ms Kominski:

This letter replaces the incorrect letter attached to your product label and also corrects the number identified on the "Accepted with Comments" stamp dated May 3, 2010.

The amended label referred to above, submitted in connection with reregistration of metam-sodium 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. General Comments
   a. For language that is bulleted, make sure that it is indented to match the bulleted format consistently throughout the label

2. Page 1
   a. the Restricted Use Pesticide language must be placed in a box
   b. Add the phrase "in this label" at the er
   Solution For Specific Crops As Listed
   c. the sentence "If you do not understanc
   in detail" needs a closed parenthesis.

3. Page 2
   a. at bottom of page 2, in the sentence b
   following before the parenthesis, "inc
   equipment with closed cabs"

4. Page 3
   a. In the bullet under Personal Protectiv
   specifies "a respirator with a canister
   "canister with any N, R, P or HE pre

7008 3230 0000 9481 9626

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Postmark Here
61842-6

Sent To Dawn Kominski
Street, Apt. No.; or PO Box No. PO Box 15627
City, State, ZIP+4 Phoenix, AZ 85060

PS Form 3800, August 2006 See Reverse for Instructions

b. In the User Safety Requirements section, add the following sentences, "DO NOT transport contaminated clothing inside a closed vehicle. Store in a sealed container as wash or dispose as specified."
c. In the Environmental Hazards section, revise sentence by removing metam potassium. Sentence should read: "Metam sodium has certain properties ..... and has low adsorption to soil)."

5. Page 4

a. The California only language from the previous label, as shown below, must be added to the Directions for Use section: *"**California Only**: Application must be in compliance with Technical Information Bulletin for California entitled, "Metam Sodium Guidelines for All Application Methods in California." This information bulletin may be obtained from your local pesticide dealer or a Metam Sodium registrant. Proposition 65 (CA Only): WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. 22 California Code of Regulations § 12601(d)(3)."*
b. Remove the following portion of the text in the parentheses in the second paragraph:

   "and not separated by a 12-hour interruption."

   This should also be removed from the first paragraph in the Site-Specific Fumigation Management Plans section (on page 29).

c. In the second paragraph, after the sentence ending with the words, "from the start of application until the entry restricted period ends," add the following:

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

6. Page 5
   a. In the "NOTE" section change "Tarp Perforation and Removal" to "Tarp Perforation and/or Removal"
   b. Remove the following text under the Supervision of Handlers section in sixth paragraph : *[the registrant provided]* 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."
   c. In addition, in the sixth paragraph of the "Protection for Handlers" section,

capitalize the first letters of the following text: "Fumigant Safe Handling."

7. Page 6
   a. At the end of the Protection for Handlers section, add the following sentence: *"Cartridges or canisters must be replaced when odor or irritation from this product becomes apparent, if the measured concentration of metam sodium is greater than 6000 ppb, or after 8 hours of use, whichever occurs first."*
   b. In the Respirator Fit Testing, Medical Qualification, and Training section, change the word "ensure" to "verify"
   c. In the Respirator Fit Testing, Medical Qualification, and Training section, add the following sentence to the end of the last bullet: *"Upon request by local/state/federal/tribal enforcement personnel, employers must provide documentation how they have complied with those these requirements."*
   d. Add the following bullet underneath the second bullet in the Respiratory and Stop Work Triggers Section (this bullet should be indented like the bullets underneath the first bullet): "During the collection of air samples, an air-purifying respirator must be worn by the handler taking the air samples."
   e. Add the following bullet underneath the fourth bullet in the Respiratory and Stop Work Triggers section: "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."
   f. The last bullet in the Respiratory and Stop Work Triggers section, add the word "all" as shown in the following: "Work activities can resume if all the following conditions exist provided that the appropriate air-purifying respirator is worn."

8. Page 8
   a. In the Agricultural Use Requirements box, the following sentence must be removed: *"It also contains specific instructions and exceptions pertaining to the statements in this label about personal protective equipment (PPE), restricted entry interval and notification of workers."* It must be replaced by the sentence that was inserted after the first paragraph in that box: "For entry-restricted period and notification requirements, see the *Entry Restricted Period* section of this labeling."
   b. In the second bullet of the Entry-Restricted Period section, before the comma and word "or," add the following:

      (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)

   c. In the NOTE section of the Entry-Restricted Period section, change "Tarp Perforation and Removal" to "Tarp Perforation and/or Removal"
   d. Remove the words "Brand name of this product" in the sixth bullet, and place quotes around "Sectagon 42" instead of parentheses

9. Pages 9 – 29 (GAPs)
    a. Insert an "s" at the end of GAP in the parentheses in the heading Mandatory Good Agricultural Practices
    b. In all application methods, the inversion language must be changed to the following: "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."
    c. The word "must" must be italicized in the "Wind Speed" and "Weather Conditions" section of all application methods.
    d. On page 9, under *Soil Condition, Injection Depth and Soil Sealing*, remove the words "For applications:" and begin that paragraph with "The injection point for bedded and broadcast applications…."
    e. On pages 10, 13, and 15 in the Soil Temperature sections, replace the words "point of injection" with the words "injection depth."
    f. In each application method in the soil moisture section:
        - include "(field capacity)" following the term "soil capacity" throughout label
        - change the word "at" to "between" in the phrase "top six inches **between** 60% to 80% soil capacity"
    g. The Air Temperature section is missing from all of the application sections. Add the following directly before the Soil Temperature section in each of these application methods:

        Air Temperature
        - The maximum air temperature is 90 degrees F.

    h. In the Tarps sections of the GAPS, change the word tarpaulins to "tarps."
    i. Soil moisture sections of Chemigation; Solid Set Sprinkler; Drench; and Drip, Flood Basin, Furrow and Border application sections, the last bullet must be revised to the following:

        "If there is insufficient moisture throughout the top six inches below the surface of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage prior to the application. To conserve existing soil moisture tillage should be done as close to the time of application as possible."

        In the "Shank" and "Rotary Tiller Applications" method Soil Moisture sections, "pretreatment or treatment tillage" should also be changes to "tillage."

    j. The last two bullets in the label table are missing from the Soil Moisture sections of "Drench Applications" and these must be added to the label:

- Applications must be followed immediately with .20 to .50 inches of water through solid set sprinklers.
- A minimum of two or more water seals must be applied; one water seal on the first evening of the application and the second on the second evening of the day after application.

10. Page 29
    a. In the FMP section, the definition of application block in the parentheses in the first paragraph is missing the following text: "…in any 24 hour period, *or for center pivot applications, which occur over many days, the total acres of a field treated.*"
    b. The following sentence begins a new paragraph in the FMP section, "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.
    c. Revise the first bullet in the FMP section to the following: Applicator information (name, phone number, pesticide applicator license and/or certificate number, employer name, employer address).
    d.
11. Page 30
    a. In the FMP section under Air Monitoring Plan, remove the duplicate words "air monitoring" and in the second sub-bullet, add an "I" to the second bullet as it should read "If"

    b. Under Good Agricultural Practices, the first bullet, remove the following: (registrants may also include optional GAPs)
    c. Following "Description of hazard communication," insert "e.g.," right inside the open parenthesis.

12. Page 31
    a. the last sentence starting with "Record-keeping procedures…." in the Post-Application Summary section should be bulleted
    b. Before the maximum application rate, add the following heading: "Maximum Application Rates for Pre-Plant Soil Fumigation"

13. Page 32
    a. Replace the crop list with the list attached with these comments.
    b. Move the greenhouse prohibitions, along with the handheld application to page 4 under the heading "Directions for Use".

14. Page 33
    a. Change the following heading from: "Read All Label Directions Before Using Product Information" to "General Instructions."

15. Page 34
    a. in the Target Pest and Depth of Treatment paragraph, following the sentence that describes how treatment of only the ~~tip~~ top 1 to 4 inches of soil may be required, add the following: (see application specific requirements in the Good Agricultural Practices section of this label).
    b. In the Organic Matter in the Soil section, add the following to the end of that sentence, "with the maximum application rate being 75 gallons per acre."

16. Page 35
    a. Add the Soil Temperature During Treatment section back to this page, but only the portion of the sentence regarding the range of temperatures (40°F to 90°F) in order to capture the lower limit:

    Soil Temperature During Treatment
    At the time of fumigation, the soil temperature should be in the range of 40°F to 90°F (4° - 32°C).

    b. In the Chemigation – General Procedures section, in the fourth paragraph, remove the language in the parentheses: (including greenhouse systems)
    c. Remove the last three paragraphs on posting under the Chemigation - General Procedures section.

17. Page 36
    a. Remove the paragraph regarding "Application Over Cover Crops" section as this was not a use that was previously on stamped Sectagon 42 labels.

18. Page 37 and 38
    a. On pages 37 under "When to Treat," and page 38 under "Application to Bed or Rows," after the words "when it is cold and/or wet" add the following: (when soil is colder than 40°F or contains more moisture than 80% field capacity).
    b. Following the text at the end of the last sentence in the "Crops To Be Hilled" section on pages 37 and 38, add the following: (see application specific requirements in the Good Agricultural Practices section of this label).
    c. On page 38, in the second paragraph in the soil injection section, remove the words "through plastic tarps"

19. Pages 39 through 41
    a. In the Drip Irrigation section, retain the following language that was in the previously stamped label, "Application must be continually supervised."
    b. In the Drip Irrigation section, after the words "if too much water is applied" add the following (if 80% field capacity is exceeded).
    c. At the bottom of page 39, remove the following sentence: "SECTAGON 42

may be applied where crop stubble or vegetation exists without prior tillage, provided there is adequate soil penetration of SECTAGON 42."

d. On page 40, under Wheat and Barley, remove the following sentence, "For best results, moisture in the treated zone should be 60% of field capacity or more."

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. Submit one copy of the final printed label that incorporates the required changes before the product is released for shipment.

One copy of the label stamped "Accepted with comments" is enclosed for your records.

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

Sincerely,

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

Enclosure: List of Eligible Crops

Metam Sodium/Potassium List of Eligible Crops

"Only for use on the following:

Cover crops (i.e., crops planted between periods of regular crop production to prevent soil erosion);
Crops grown solely for seed;
as well as (in alphabetical order):

alfalfa; amaranth (including leafy amaranth, Chinese spinach, tampala); anise; apple (including: balsam, crabapple); apricot; artichokes; arugula (roquette); asparagus (nursery production only); barley; basil; beans (including: lima, green, fava, seed beans); beet (including garden);

berry (including black satin berry, blackberry, blueberry, boysenberry, chesterberry, lowberry, wild raspberry, youngberry, darrowberry, dewberry, cloudberry, elderberry, Cherokee blackberry, coryberry, European barberry, huckleberry, hullberry, gooseberry, cranberry, highbush cranberry, Himalayaberry, jostaberry, juneberry, saskatoon berry, lingonberry, loganberry, lavacaberry, lucretiaberry, mammoth blackberry, marionberry, bingleberry, mountain pepper berries, mulberry, olallieberry, dirksen thornless berry, nectarberry, Oregon evergreen berry, partridgeberry, phenomenalberry, rangeberry, raspberry (black and red), ravenberry, riberry, rossberry, schisandra berry, serviceberry, Shawnee blackberry, strawberry)

bok choy; broccoli; brussels sprouts; cabbage (including Napa); calabaza; calamondin; cardoon; carrot; casaba; cauliflower; celeriac; celery (including: Chinese); celtuce; chayote (fruit); che; cherry (including: sweet and tart, chokecherry, pincherry); chervil; cheyenne;
Chilean guava; Chinese greens; Chinese okra; Chinese waxgourd (Chinese preserving melon); chinquapin; chironja; chrysanthemum; cilantro; citrus citron; citrus hybrids; collard; corn salad; corn; cotton; cress (including: upland, yellow rocket, winter cress);
cucumber (including: Chinese cucumber); cucuzza; currant, (including: black, red, native and other varieties and hybrids);

dandelion; dill; dock (sorrel); eggplant; endive (escarole); fennel, Florence (finochio); forest seedlings; garland; garlic; gherkin; ginger; gourd; grape; grapefruit; hechima; herbs (all); honey balls; honeysuckle; hyotan; kale; kiwifruit (including: fuzzy and hardy); kohlrabi; kumquat; leek; lemon; lettuce (including: head and leaf); lime; loquat; mandarin (including: tangerine and satsuma); mango; mayhaw; maypop;

melon (including: bitter melon, cantaloupe, hybrids and/or cultivars, citron melon, crenshaw melon, golden pershaw melon, mango melon, honeydew melon, muskmelon, Persian melon, pineapple melon, Santa Claus melon, snake melon,
watermelon);

mint; muntries; mustard; nectarine; nursery stock (fruit seedlings and rose bushes only);
nursery tree crops (including crops like maple, ash, dogwood);

nut (including: almond, beech nut, cashew, chestnut, hickory nut, Brazil nut, macadamia nut (bush nut), filbert (hazelnut), pecan, pistachio, walnut (black and English/Persian);

onion; orach; orange (including: sour and sweet); ornamentals; parsley; peas (including: English and garden); peach; peanut; pear (including: oriental and balsam); pepper; phalsa;
plum (including: Chickasaw and Damson); plumcot; potato; prune (fresh); pummelo; pumpkin; purslane (including: garden and winter); quince;

radicchio (red chicory); radish (including Oriental); rappini; rhubarb; rye; salal; sea buckthorn; soybean; spinach (including: New Zealand, Malabar, Indian); squash, (including: summer, winter, butternut, straightneck, Acorn, crookneck, hubbard, scallop, spaghetti); sugar beet; sweet potato; swiss chard; tangelo; tangor; tobacco; tomatoes; tree nuts (orchard replant only); turf (including golf courses); turnip; vegetable marrow; wheat; yams; zucchini."

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.

SECTAGON 42®

FUMIGANT SOLUTION FOR SPECIFIC CROPS AS LISTED

For suppression of: Nematodes, Fungi, Bacteria, Weeds, Weed seeds and Volunteer seeds.

42.2% SODIUM METHYLDITHIOCARBAMATE

ACTIVE INGREDIENT:
Sodium methyldithiocarbamate (anhydrous) 42.2%
OTHER INGREDIENTS: 57.8%
TOTAL: 100.0%

Contains 4.22 lbs. active ingredient per gallon.

EPA Reg. No. 61842-6 **EPA Est. No.**

KEEP OUT OF REACH OF CHILDREN

DANGER PELIGRO

READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH LABEL WARNINGS AND DIRECTIONS

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

FIRST AID

If 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 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 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 or doctor. Do not give anything by mouth to an unconscious person.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-866-374-1975 for emergency medical treatment information.

NOTE TO PHYSICIAN

Probable mucousal damage may contraindicate the use of gastric lavage.

Manufactured by:
Tessenderlo Kerley, Inc.
2255 North 44th Street, Suite 300
Phoenix, Arizona 85008-3279
1-800-525-2803

Net Contents:

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
DANGER

- Corrosive: causes skin damage. May be fatal if absorbed through the skin. Do not get on skin or clothing.
- Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals.
- Harmful if swallowed.
- Harmful if inhaled. Irritating to eyes, nose, and throat. Avoid breathing vapor or spray mist.
- Irritating to eyes. Do not get in eyes.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are barrier laminate or viton ≥ 14 mils. For more options, follow the instructions for category H on an EPA chemical resistance category selection chart.

Handlers applying via weed sprayer while irrigation sprinklers are running or handlers who may be exposed to liquid spray while repairing a malfunctioning chemigation system or shutting off equipment must wear:

- chemical-resistant coveralls over long-sleeve shirt and long pants,
- chemical-resistant gloves,
- chemical-resistant footwear plus socks,
- chemical-resistant headgear,
- protective eyewear, and
- respirator of the type specified in the respiratory protection section in the PPE requirements on this label.

Handlers wearing chemical-resistant attire are limited to 30 minutes of exposure in any 60 minute period to prevent heat illness, and, as required by the Worker Protection Standard for Agricultural Pesticides, employers of these handlers must take any necessary steps to avoid heat illness.

Except as required above, handlers transferring or loading liquid formulations, handlers operating motorized ground equipment with open cabs, handlers repairing or inactivating irrigation or chemigation equipment during application, and handlers cleaning up spills or equipment, must wear:
-- coveralls over long-sleeve shirt and long pants,
-- chemical resistant gloves,
-- chemical resistant footwear plus socks,
-- chemical-resistant apron if transferring or loading the fumigant or cleaning up spills or equipment,
-- protective eyewear, and
-- respirator of the type specified in the PPE requirements for respiratory protection section in the PPE requirements on this label if triggered.

All other handlers (except for fumigant handlers who set up and calibrate chemigation and irrigation equipment and start the application from inside the application block) as stated in this labeling must wear:
-- long-sleeve shirt and long pants,
-- shoes plus socks, and
-- respirator of the type specified in the eye and respiratory protection section in the PPE requirements on this label if triggered.

All handlers who set-up and calibrate chemigation and irrigation equipment and start the application from inside the application block must wear:
-- long-sleeve shirt and long pants,
-- shoes plus socks,
-- protective eyewear, and
-- respirator of the type specified in the respiratory protection section in the PPE requirements on this label if triggered.

PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR RESPIRATORY PROTECTION

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 mammals, birds, aquatic invertebrates and fish. 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 wash waters or rinsate.

Metam-sodium and metam-potassium have certain properties and characteristics in common with chemicals that have been detected in groundwater (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. Apply this product only as specified on this label.

USE PRECAUTIONS

Keep off desirable lawns and plants. Do not apply within 3 feet of the drip line of desirable plants, shrubs or trees. Do not use in confined areas without adequate ventilation OR where fumes may enter nearby dwellings. Do not use in greenhouses. Keep container tightly closed when not in use. Do not store near feed or food.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in a cool, dry place, keep container closed when not in use. Do not store below 0° F. Product crystallizes at lower temperatures. Warm or store at higher temperatures and mix to redissolve crystals and assure uniformity before use.

Do not stack more than three drums high. Leaking or damaged drums should be placed in overpack drums for disposal. Spills should be absorbed in sawdust or sand and disposed of in a sanitary landfill.

Keep container closed when not in use.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instruction, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL:
[NON-REFILLABLE CONTAINERS]

Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Then offer for recycling if available 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.

[REFILLABLE CONTAINERS]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available 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.

NOTE OF WARNING: CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER!

DIRECTIONS FOR USE

For suppression of: Nematodes, Fungi, Bacteria, Weeds, Weed seeds and Volunteer seeds.

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.

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 or, for center pivot applications which occur over many days, the total acres of a field treated and not separated by a 12 hour interruption) 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 (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, operating or removing irrigation equipment in the 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:

- **o** until 14 days after application is complete if tarps are not perforated and removed during those 14 days, or
- **o** until tarp removal is complete if tarps are **both** perforated **and** removed less than 14 days after application; or
- **o** until 48 hours after tarps perforation is complete if they will not be removed within 14 days after application.

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

• Performing any handling tasks as defined by the Worker Protection Standard

• In addition to the above, persons outside the perimeter of the application block who visually monitor application equipment to ensure proper functioning and monitor fumigant air concentration in accordance with the fumigant site monitoring requirement must also be trained and equipped as handlers in accordance with the requirements in the Worker Protection Standard (40 CFR Part 170).

PROTECTION FOR HANDLERS

For all applications except water run: 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 all water-run applications (e.g., sprinkler/chemigation, wheel line, center pivot, lateral move, drip, flood, etc.), the certified applicator must be at the fumigation site in the line of sight of the application to start the application including set-up, calibration, and initiation of the application. The certified applicator may leave the site but must return at least every two hours to visually inspect the equipment to ensure proper functioning and must directly supervise all Worker Protection Standard trained handlers on-site until the fumigation has stopped being delivered/dispersed into the soil. Worker Protection Standard-trained handlers may perform the monitoring functions in place of the certified applicator but must be under the supervision of the certified applicator and able to communicate with the certified applicator at all times during monitoring activities via cell phone or other means. The results of monitoring activities must be captured in the Fumigant Management Plant (FMP).

For 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.

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.

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.

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

The fumigation handler employer must confirm and document in the FMP 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.

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.

RESPIRATORY PROTECTION AND STOP WORK TRIGGERS

The following procedures must be followed to determine whether an air-purifying respirator is required or if operations must cease for any person performing a handling task as defined in this labeling.

- If at any time any handler experiences sensory irritation (tearing, burning of the eyes or nose) then either:
  - **o** An air-purifying respirator must be worn by all handlers who remain in the application block, or
  - **o** Operations must cease and handlers not wearing an 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 an air-purifying respirator, or (2) an air sample is greater than or equal to 6,000 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 respiratory protection, 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 respirator must be worn by the handler taking the air samples. Samples must be taken where the irritation is experienced.
- Work activities can resume if the following conditions exist provided that the appropriate air-purifying respirator is worn:
  - o Two consecutive breathing zone samples for MITC taken at the handling site at least 15 minutes apart must be less than 6,000 ppb,
  - o Handlers do not experience sensory irritation while wearing the air-purifying respirator, and
  - o Cartridges have been changed.
  - o 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."

TARP PERFORATION AND/OR REMOVAL

IMPORTANT: Persons perforating, repairing, removing, and/or monitoring tarps are defined, within certain time limitations, as handlers (see definition of fumigant handlers 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:
  - o At the beginning of each row when a coulter blade (or other device which performs similarly) is used on a motorized vehicle such as an ATV.
  - o In fields that are 1 acre or less.
  - o 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:
  - o 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.
  - o 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

o Tarp perforation is allowed before the 5 days (120 hours) have elapsed if rain necessitates field drainage.

o Tarps must be immediately retucked and packed after soil removal.

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

For entry restricted period and notification requirements, see the *Entry Restricted Period* section of this labeling.

ENTRY-RESTRICTED PERIOD

Entry (including early entry that would otherwise be permitted under the Worker Protection Standard) 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
- 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 REQUIREMENT

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

-- "DANGER/PELIGRO,"
--"Area under fumigation, DO NOT ENTER/NO ENTRE,"
-- "Metam Sodium fumigation in Use."
-- the date and time of fumigation,
-- the date and time entry restricted period is lifted,
-- brand name of this product (Sectagon 42), and
-- name, address, and telephone number of the certified applicator in charge of the fumigation.

Post the Fumigant Treated Area sign instead of the Worker Protection Standard sign for this application but follow all Worker Protection Standard 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 field or portion of a field treated with a fumigant in any 24-hour period or, for center pivot applications with occur over many days, the total acres of a field treated and not separated by a 12 hour interruption).

MANDATORY GOOD AGRICULTURAL PRACTICES (GAP):

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.

Shank Applications

Wind Speed

- 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.

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 exist or are predicted (see *(Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
- 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.
- Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions, Injection Depth, and Soil Sealing

- Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant application. The soil must be tilled, at a minimum to the depth of the treatment zone.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

For applications: The injection point for bedded and broadcast applications shall be a minimum of 3 inches from the final soil/air interface. Chisel traces must be eliminated following an application and the soil surface must be sealed immediately after application using one of the following methods:

- Compaction with a bed-shaper, roller, press wheel or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a ½-inch of water beginning immediately after application of a set and completing the water treatment within four hours, OR

• Covering treated area with a tarp.

Tarps

• When tarps are used for emission control, tarps must be installed immediately after application.
• When tarps are used, a written tarp plan must be developed and included in the FMP that includes:

- o Schedule and procedures for checking tarpaulins for damage, tears, and other problems,
- o Plans for determining when and how repairs to tarp will be made, and by whom,
- o Minimum time following injection that tarp will be repaired,
- o Minimum size of damage that will be repaired,
- o Other factors used to determine when tarp repair will be conducted,
- o Schedule, equipment and methods used to cut tarp,
- o Aeration plans and procedures following cutting and /or slitting prior to tarp removal or planting, and
- o Schedule, equipment, and procedures for tarp removal.

Soil Temperature

- At the beginning of the application, the maximum soil temperature at the point of injection is 90 degrees F.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisture in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application, subject to the exception below.
• EXCEPTION: In areas where soil moisture must exceed field capacity to form a bed *(e.g.*, certain regions in Florida), soil capacity may exceed the 80% allocated above.

•If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils **(**sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of

the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.

• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

• Do not apply or allow fumigant to drain or drip onto the soil surface. Injectors must be placed below the soil surface before product flow begins. For each injection line either have a check valve located as close as possible to the final injection point, or drain/purge the line of any remaining fumigant prior to lifting injection shanks from the ground. Do not lift injection shanks from the soil until the shut-off valve has been closed and the fumigant has been depressurized (passively drained) or purged (actively forced out via air compressor) from the system.

• Application equipment must be in good working order.

• All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.

• Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.

• Sight gauges and pressure gauges must be working.

• Nozzles and metering devices must be the correct size and sealed and unobstructed.

• Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.

• Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.

• For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.

• All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor pilot during application to prevent backflow of the fumigant into the pressurizing cylinder.

• All rigs must include a flow meter or a flow monitoring device.

• All rigs must have a constant pressure system with orifice plates to insure the proper amount of fumigant is applied.

• Valves, vacuum relief valves, and low pressure drains must be in place, operational, and leak free.

• Interlocking controls must be installed and functioning.

• Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.

• Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:

- Check the filter, and clean or replace the filter element as required.
- Check all tubes and chisels to make sure they are free of debris and obstructions.
- Check and clean the orifice plates.

Spray Blade Applications (includes bed-top blade and soil cap applications)

Wind Speed

• 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.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
• 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.
• Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions, Injection Depth, and Soil Sealing

• Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant application. The soil must be tilled, at a minimum to the depth of the treatment zone.
• Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Apply the product on the soil immediately ahead of the bed-shaping equipment. The soil surface must be compacted immediately after application using one of the following methods:

• Compaction with a bed-shaper, roller, press wheel or similar device, OR
• Covering the treated soil with 3-6 inches of untreated soil, OR
• Applying a minimum of a ½-inch of water beginning immediately after application of a set and completing the water treatment within four hours, OR
• Covering treated area with a tarp.

Tarps

• When tarps are used for emission control, tarps must be installed immediately after application.
• When tarps are used, a written tarp plan must be developed and included in the FMP that includes:
  - o Schedule and procedures for checking tarpaulins for damage, tears, and other problems,
  - o Plans for determining when and how repairs to tarp will be made, and by whom,
  - o Minimum time following injection that tarp will be repaired,
  - o Minimum size of damage that will be repaired,
  - o Other factors used to determine when tarp repair will be conducted,
  - o Schedule, equipment and methods used to cut tarp,
  - o Aeration plans and procedures following cutting and /or slitting prior to tarp removal or planting, and

- o Schedule, equipment, and procedures for tarp removal.

Soil Temperature

- At the beginning of the application, the maximum soil temperature at the point of injection is 90 degrees F.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisturing in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application, subject to the exception below.
• EXCEPTION: In areas where soil moisture must exceed field capacity to form a bed *(e.g.*, certain regions in Florida), soil capacity may exceed the 80% allocated above.

•If appropriate measure equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils **(**sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.
• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

• Do not apply or allow fumigant to drain or drip onto the soil surface
• Application equipment must be in good working order.

• All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
• Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.
• Sight gauges and pressure gauges must be working.
• Nozzles and metering devices must be the correct size and sealed and unobstructed.
• Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
• Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
• For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
• All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor pilot during application to prevent backflow of the fumigant into the pressurizing cylinder.
• Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
- Check the filter, and clean or replace the filter element as required.
- Check all tubes and chisels to make sure they are free of debris and obstructions.
- Check and clean the orifice plates.

Rotary Tiller Applications

Wind Speed

• 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.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
• 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.
• Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions, Injection Depth, and Soil Sealing

• Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant application. The soil must be tilled, at a minimum to the depth of the treatment zone.

• Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Apply the product on the soil immediately ahead of the tiller. The soil surface must be compacted immediately after application using one of the following methods:

• Compaction with a bed-shaper, roller, press wheel or similar device, OR
• Covering the treated soil with 3-6 inches of untreated soil, OR
• Applying a minimum of a ½-inch of water beginning immediately after application of a set and completing the water treatment within four hours, OR
• Covering treated area with a tarp.

Tarps

• When tarps are used for emission control, tarps must be installed immediately after application.
• When tarps are used, a written tarp plan must be developed and included in the FMP that includes:

- o Schedule and procedures for checking tarpaulins for damage, tears, and other problems,
- o Plans for determining when and how repairs to tarp will be made, and by whom,
- o Minimum time following injection that tarp will be repaired,
- o Minimum size of damage that will be repaired,
- o Other factors used to determine when tarp repair will be conducted,
- o Schedule, equipment and methods used to cut tarp,
- o Aeration plans and procedures following cutting and /or slitting prior to tarp removal or planting, and
- o Schedule, equipment, and procedures for tarp removal.

Soil Temperature

- At the beginning of the application, the maximum soil temperature at the point of injection is 90 degrees F.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisture in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application, subject to the exception below.
• EXCEPTION: In areas where soil moisture must exceed field capacity to form a bed *(e.g.*, certain regions in Florida), soil capacity may exceed the 80% allocated above.

•If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.

• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

• Do not apply or allow fumigant to drain or drip onto the soil surface
• Application equipment must be in good working order.
• All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
• Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.
• Sight gauges and pressure gauges must be working.
• Nozzles and metering devices must be the correct size and sealed and unobstructed.
• Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
• Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
• For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
• All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor pilot during application to prevent backflow of the fumigant into the pressurizing cylinder.
• Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

Center Pivot Applications

Wind Speed

• For mid-release, high-release and end-gun sprinkler or chemigation applications as defined by U.S. EPA, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.

• For low-release height solid-stream sprinkler or chemigation applications as defined by U.S. EPA, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 25 mph.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.

• 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.

• Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

• Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, tillage to fracture these layers must occur. The soil must be tilled before or during the application, at a minimum to the depth of the intended treatment zone.

• Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Except when applying over cover crops as set forth in the General Instructions for Sprinkler System, crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisture in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application.

•If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.

• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Flushing Irrigation Lines

• Do not allow fumigant to remain in the irrigation system after the application is complete. After application of the fumigant, flush the injection and irrigation system with untreated water. The flush time must be adequate to purge the fumigant from the injection and irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal.

Application and Equipment Considerations

• Anti-siphon and back-flow prevention devices must be installed and in working order.

• Use only tanks constructed with materials approved for handling metam. Tanks must be inspected, in good condition, and not past their life expectancy to ensure product does not spill or leak.

• Tanks must have proper pesticide labels on them.

• All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.

• Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.

• Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.

• For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.

• The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
• The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
• The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
• The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
• The irrigation line or water pump must include a functional pressure switch that will stop the motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
• Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Solid Set Sprinkler Applications

Wind Speed

• Wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
• 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.
• Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

• Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, the soil must be tilled, at a minimum to the depth of the treatment zone.
• Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Except when applying over cover crops as set forth in the General Instructions for Sprinkler Systems, crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys"

allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisture in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application.

•If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

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fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.

• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Flushing Irrigation Lines

• Do not allow fumigant to remain in the irrigation system after the application is complete. After application of the fumigant, flush the injection and irrigation system with untreated water. The flush time must be adequate to purge the fumigant from the injection and irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for

both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Use only tanks constructed with materials approved for handling metam. Tanks must be inspected, in good condition, and not past their life expectancy to ensure product does not spill or leak.
- Tanks must have proper pesticide labels on them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Drench Applications

Wind Speed

- Wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
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Soil Conditions

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• Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

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For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser

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• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

• Anti-siphon and back-flow prevention devices must be installed and in working order.

• Use only tanks constructed with materials approved for handling metam. Tanks must be inspected, in good condition, and not past their life expectancy to ensure product does not spill or leak.

• Tanks must have proper pesticide labels on them.

• All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.

• Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.

• Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.

• For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.

• Each nozzle must be equipped with a flow monitor, e.g., mechanical electronic, or Red-ball type monitor.

• To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.

• Nozzles and metering devices are of correct size and are sealed and unobstructed.

• The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

• The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.

• The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

• The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

• The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

• Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Drip Applications

Wind Speed

• 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.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.

• 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.

• Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

• Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant application. The soil must be tilled, at a minimum to the depth of the treatment zone.

• Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisture in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application, subject to the exception below.

• EXCEPTION: In areas where soil moisture must exceed field capacity to form a bed *(e.g.*, certain regions in Florida), soil capacity may exceed the 80% allocated above.

•If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.

• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Tarps

• When tarps are used for emission control in drip irrigation the tarps must be installed immediately after application.

• When tarps are used, a written tarp plan must be developed and included in the FMP that that includes:

- o Schedule and procedures for checking tarpaulins for damage, tears, and other problems,
- o Plans for determining when and how repairs to tarp will be made, and by whom,
- o Minimum time following injection that tarp will be repaired,
- o Minimum size of damage that will be repaired,
- o Other factors used to determine when tarp repair will be conducted,
- o Schedule, equipment and methods used to cut tarp,
- o Aeration plans and procedures following cutting and /or slitting prior to tarp removal or planting, and
- o Schedule, equipment, and procedures for tarp removal.

Flushing Drip Irrigation Lines

• After application of the fumigant, continue to irrigate the area with water to flush the injection and irrigation system with untreated water. Do not allow fumigant to remain in the irrigation system after the application is complete. The total volume of water must be adequate to completely remove the fumigant from the irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal and/or normal irrigation practices.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Use only tanks constructed with materials approved for handling metam. Tanks must be inspected, in good condition, and not past their life expectancy to ensure product does not spill or leak.
- Tanks must have proper pesticide labels on them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- The drip irrigation system (main lines, headers, drip tape) must be thoroughly checked for leaks before the start of the application. An adequate run-time and pressure are needed to detect leaks. Look for puddling along major pipes (holes on pipes or leaky joints), at the top and ends of rows (leaky connections, open drip tape), in the furrows and on the bed surface (damaged drip tape, malfunctioning emitters).
- To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
- The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Flood Basin, Furrow and Border Applications

Wind Speed

- 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.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
- 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.

• Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

• Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant application. The soil must be tilled, at a minimum to the depth of the treatment zone.

• Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Tarps

• When tarps are used for emission control, tarps must be installed immediately after application.

• When tarps are used, a written tarp plan must be developed and included in the FMP that includes:

- o Schedule and procedures for checking tarpaulins for damage, tears, and other problems,
- o Plans for determining when and how repairs to tarp will be made, and by whom,
- o Minimum time following injection that tarp will be repaired,
- o Minimum size of damage that will be repaired,
- o Other factors used to determine when tarp repair will be conducted,
- o Schedule, equipment and methods used to cut tarp,
- o Aeration plans and procedures following cutting and /or slitting prior to tarp removal or planting, and
- o Schedule, equipment, and procedures for tarp removal.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisture in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application, subject to the exception below.

• EXCEPTION: In areas where soil moisture must exceed field capacity to form a bed *(e.g.*, certain regions in Florida), soil capacity may exceed the 80% allocated above.

•If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA

Feel Method test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

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• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

• Systems using a gravity flow pesticide dispersing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.

• Meter at a steady rate into 3 to 18 inches of water per treated acre during irrigation.

IMPORTANT: Prior to starting the application, always inspect ditches and border areas to ensure containment of the irrigation waters. Apply only into field head ditch. DO NOT APPLY INTO ANY LATERAL DITCHES.

• Back-flow prevention devices must be installed and in working order.

• Use only tanks constructed with materials approved for handling metam. Tanks must be inspected, in good condition, and not past their life expectancy to ensure product does not spill or leak.

• Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.

• Tanks must have proper pesticide labels on them.

• All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.

• Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.

- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
- Flow rates must be calibrated and checked for each application.
- All previous materials applied with the system must be cleaned thoroughly prior to fumigant application.
- System must be flushed after application to totally remove all fumigant.

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., the field or portion of a field treated with a fumigant in any 24-hour period). In addition, agricultural operations fumigating multiple application blocks as part of a larger fumigation may format their 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, separate 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) reflect 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)
- 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, odor complaints, or other emergencies).
• Fumigant Treated Area posting procedures (name, address, and phone number of person(s) who will post Fumigant Treated Area signs, location of posting 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., treated area location, timing of tarp cutting and removal, PPE).
  o Name and phone number of persons contacted
  o Date contacted
• Authorized on-site personnel
  o Name, address, and phone number of handlers
  o Name, address, and phone number for employers of handlers
  o Tasks that each handler is authorized and trained to perform
  o For handlers designated to wear air purifying respirators (an air-purifying respirators 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
  o If sensory irritation is experienced, indicate whether operations will be ceased or operations will continue with an air-purifying respirator
  o f 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:
    o Representative handler tasks to be monitored
    o Monitoring equipment to be used and timing of monitoring
• Good Agricultural Practices (GAPs)
  o Description of applicable mandatory GAPs (registrants may also include optional GAPs)
  o 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 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:
  o The certified applicator supervising the application has verified that those elements are current and applicable to the application block before it is fumigated and has documented the verification in the site-specific FMP; and
  o 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.

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
        - 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)."

Maximum application rate is 320 lbs ai/A (75 gallons per treated acre).

Only for use on the following:

Alfalfa; Almond (*Prunus dulcis*); Amaranth (leafy amaranth, Chinese spinach, tampala) (*Amaranthus spp.*); Amur River Grape; Andean Blackberry; Angelica; Anise; Apple (*Malus domestica*); Apricot (*Prunus armeniaca*); Aronia Berry; Artic Blackberry; Arugula (roquette) (*Eruca sativa*); Asparagus (nursery production only); Artichokes; Balm (lemon balm); Barley; Basil; Bayberry; Bearberry; Beech Nut (*Fagus spp.*); Beet, Garden; Beet, Sugar; Bilberry; Bingleberry; Blackberry (*Rubus eubatus*); Black Satin Berry; Blueberry, highbush and lowbush (*Vaccinium spp.*); Borage; Boysenberry; Brazil Nut (*Bertholletia excelsa*); Broccoli; Broccoli, Chinese (Gai Lon); Broccoli, raab (rapini); Brombeere; Brussels Sprouts; Buffaloberry; Burdock, Edible; Burnet; Butternut (*Juglans cinerea*); Cabbage; Cabbage, Chinese (Bok Choy); Cabbage, Chinese mustard (Gai Choy); Cabbage, Napa; Calamondin (*Citrus mitis* X *Citrofortunella mitis*); California Blackberry; Camomile; Cardoon (*Cynara cardunculus*); Carrot; Cashew (*Anacardium occidentale*); Catnip; Cauliflower; Cavalo Broccolo; Celeriac (celery root); Celery (*Apium graveolens* var. dulce); Celery, Chinese (*Apium graveolens* var. secalinum); Celtuce (*Lactuca sativa* var. angustana); Chayote (fruit) (*Sechium edule*); Che; Cherokee Blackberry; Cherry, sweet (*Prunus avium*); Cherry, tart (*Prunus cerasus*); Chervil (dried) (*Anthriscus cerefolium*); Chervil, turnip-rooted (*Chaerophyllum bulbosum*); Chesterberry; Chestnut (*Castanea spp.*); Cheyenne Blackberry; Chicory; Chilean Guava; Chinese Waxgourd (Chinese preserving melon) (*Benincasa hispida*); Chinquapin (*Castanea pumila*); Chive, fresh leaves; Chive, Chinese, fresh leaves; Chokecherry; Chrysanthemum, edible-leaved (*Chrysanthemum coronarium* var. coronarium); Chrysanthemum, garland (*Chrysanthemum coronarium* var. spatiosum); Cilantro; Citron Melon (*Citrullus lanatus* var. citroides); Citrus (orchard replant only); Citrus Citron (*Citrus medica*); Citrus Hybrids (*Citrus spp.*) (includes: Chironja, Tangelo, Tangor); Clary; Cloudberry; Clover; Collard; Common Blackberry; Corn; Corn Salad (*Valerianella locusta*); Coriander (cilantro or Chinese parsley) (leaf); Coryberry; Costmary; Cotton; Cover crops (i.e., crops planted between periods of regular crop production to prevent soil erosion, control weeds, and improve soil quality that are incorporated into the soil before the next crop is planted and may not be harvested for food or feed); Crops grown solely for seed; Crabapple (*Malus spp.*); Cranberry; Cress, garden (*Lepidium sativum*); Cress, upland (yellow rocket, winter cress) (*Barbarea vulgaris*); Cucumber (*Cucumis sativus*); Cucurbits; Culantro (leaf); Currant, Black; Currant, Red; Curry (leaf); Dandelion (*Taraxacum officinale*); Darrowberry; Dewberry; Dill; Dill (dillweed); Dirksen Thornless Berry; Dock (sorrel) (*Rumex spp.*); Eggplant; Elderberry (*Sambucus spp.*); Elegans Hosta; Endive (escarole) (*Cichorium endivia*); European Barberry; Evergreen Blackberry; Fava Beans; Fennel, Filbert (hazelnut) (*Corylus spp.*); Florence (finochio) (Foeniculum vulgare Azoricum Group); Fritillaria, leaves; Forest Seedlings; Garden Beet; Garlic; Gherkin (*Cucumis anguria*); Ginger; Ginseng; Gooseberry (*Ribes spp.*); Gourd, edible (*Lagenaria spp.*) (includes: hyotan, cucuzza (*Luffa acutangula*, *L. cylindrical*, includes hechima, Chinese okra); Grape (vineyard replant only); Grapefruit (*Citrus paradisi*); Green Beans; Herbs (all); Hickory Nut (*Carya spp.*); Highbush Cranberry; Himalayaberry; Honeysuckle, edible; Horehound; Horseradish; Huckleberry (*Gaylussacia spp.*); Hullberry; Hyssop; Jostaberry; Juneberry; Kale; Kiwifruit, fuzzy; Kiwifruit, hardy; Kohlrabi; Kumquat (*Fortunella spp.*); Kurrat; Lavacaberry; Lavender; Leafy Greens; Leek; Leek, ladies; Leek, wild; Lemon (*Citrus jambhiri*, *Citrus limon*); Lemongrass; Lettuce, head and leaf (*Lactuca sativa*); Lima Beans; Lime (*Citrus aurantiifolia*); Lingonberry; Loganberry (*Rubus loganobaccus*); Loquat (*Eriobotrya japonica*); Lowberry; Lovage (leaf); Lucretiaberry; Macadamia Nut (bush nut) (*Macadamia spp.*); Mammoth Blackberry; Mandarin (tangerine) (*Citrus reticulata*); Marigold; Marionberry; Marjoram (includes sweet or annual marjoram, wild marjoram, or oregano, and pot marjoram); Mayhaw (*Crataegus aestivalis*, *C. opaca*, and *C. rufula*); Maypop; Mint; Mizuna; *Momordica spp.* (includes balsam apple, balsam pear, bitter melon, Chinese cucumber); Mora; Mountain Pepper Berries; Mulberry; Muntries; Mures Denronce; Muskmelon (hybrids and/or cultivars of *Cucumis melo* (includes true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon)); Mustard; Mustard Greens; Mustard Spinach; Nasturtium; Native Currant; Nectarberry; Nectarine *(Prunus persica*); Northern Dewberry; Nursery Stock (fruit seedlings and rose bushes only); All Nursery Tree Crops (like Maple, Ash, Dogwood); Oats; Olallieberry; Onion; Onion, Beltsville bunching; Onion, fresh; Onion, green; Onion, macrostem; Onion, tree tops; Onion, Welsh tops; Orange, sour (*Citrus aurantium*); Orange, sweet (*Citrus sinensis*); Orach (*Atriplex hortensis*); Oregon Evergreen Berry; Oriental Radish; Ornamentals (floriculture only); Ornamental Crops; Parsley (*Petroselinum crispum*), Parsley, turnip-rooted (*Petroselinum crispum* var. *tuberosum*); Parsnip; Partridgeberry; Peach (*Prunus persica*); Pear (*Pyrus communis*), Pear, oriental

(*Pyrus pyrifolia*); Peas (English and Garden); Pecan (*Carya illinoensis*); Pennyroyal; Phalsa; Phenomenalberry; Pincherry; Pistachio; Plum (*Prunus domestica*, *Prunus spp.*); Plum, Chickasaw (*Prunus angustifolia*); Plum, Damson (*Prunus domestica* spp. insititia); Plum, Japanese (*Prunus salicina*); Plumcot (*Prunus. armeniaca* X *P. domestica*); Pome Fruit (orchard replant only) Peanut; Pepper; Potato; Prune (fresh) (*Prunus domestica*, *Prunus spp.*); Pummelo (*Citrus grandis*, *Citrus maxima*); Pumpkin (*Cucurbita spp.*); Purslane, garden (*Portulaca oleracea*); Purslane, winter (*Montia perfoliata*); Quince (*Cydonia oblonga*); Radicchio (red chicory) (*Cichorium intybus*); Radish; Radish, oriental (daikon); Rangeberry; Rape Greens; Rappini; Raspberry, black, Raspberry, red; Raspberry, wild; Ravenberry; Rhubarb (*Rheum rhabarbarum*); Riberry; Rosemary; Rossberry; Rue; Rutabaga; Rye; Sage; Salal; Salsify (oyster plant); Salsify, black; Salsify, Spanish; Satsuma Mandarin (*Citrus unshiu*); Savory, summer and winter; Schisandra Berry; Sea Buckthorn; Seed Beans; Serviceberry; Shallot, fresh leaves; Shawnee Blackberry; Skirret; Soybean; Spinach (*Spinacia oleracea*); Spinach, New Zealand (*Tetragonia tetragonioides*, *T. expansa*); Spinach, vine (Malabar spinach, Indian spinach) (*Basella alba*); Squash, summer (*Cucurbita pepo* var. melopepo) (includes: crookneck squash, scallop squash, straightneck squash, vegetable marrow, and zucchini); Squash, winter (*Cucurbita maxima*; *C. moschata*) (includes: butternut squash, calabaza, hubbard squash) and (*C. mixta*; *C. pepo*) (includes acorn squash, spaghetti squash); Stone Fruit (orchard replant only) Strawberries; Sudan; Sweet bay (bay leaf); Sweet Potato; Swiss Chard; Tansy; Tarragon; Tayberry; Thyme; Tobacco; Tomatoes; Tree Nuts (orchard replant only) Turnip; Turf (including golf courses); Walnut, black and English (Persian) (*Juglans spp.*); Watermelon (includes hybrids and/or varieties of *Citrullus lanatus*); Wheat; Wintergreen; Woodruff; Wormwood; Yams; Youngberry and varieties and/or hybrids of these; and Zarzamora.

Use in greenhouses is prohibited. Application with handheld equipment is prohibited. Application with cement grinder and shredder equipment is prohibited. Open-pour applications are prohibited.

Use only according to label. Do not apply this product through any irrigation system unless the labeling on chemigation is followed.

READ ALL LABEL DIRECTIONS BEFORE USING

PRODUCT INFORMATION

SECTAGON 42® is a water-soluble liquid. When applied to properly prepared soil, the liquid is converted into a gaseous fumigant. After a sufficient waiting period, the gas dissipates, leaving the soil ready for planting. SECTAGON 42® is recommended for the suppression of weeds, plant parasitic nematodes, and soilborne fungi that cause reductions in the yield and quality of ornamental, food and fiber crops.

SECTAGON 42® will suppress only those pests in the fumigation zone at the time of treatment. Recontamination may occur subsequent to the fumigant's dissipation from the soil.

Weeds and germinating weed seeds that are suppressed include Annual bluegrass, Bermuda grass, Chickweed, Dandelion, Ragweed, Henbit, Lambsquarter, Amaranthus sp. (Pigweed, Careless weed), Watergrass, Johnsongrass, Nutgrass, Wild morningglory, Purslane, Barnyardgrass, Crabgrass, Groundsel, Prickly lettuce, Pineappleweed, Nettleaf, Goosefoot, Nightshade, Shepherdspurse, Stinging nettle, Malva, London rocket, and Fiddleneck. The best weed suppression is obtained when SECTAGON 42® is applied to weeds that are actively growing.

The soil-borne plant pathogenic fungi suppressed include species of Verticillium, Rhizoctonia, Pythium, Phytophthora, Sclerotinia.

The plant parasitic nematodes which SECTAGON 42® suppresses include Root knot, Lesion, Dagger, Lance, Needle, Pin, Reniform, Stunt, Stubby root, Sting and Spiral.

Note: SECTAGON 42® will only suppress nematodes that are in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that SECTAGON 42® achieves at the time of application. In Oregon and Washington, SECTAGON 42® will only suppress Miloidogyne Chitwoodi. Other pests suppressed include symphilids or garden centipedes.

TREATMENT GUIDELINES

For optimum results from soil fumigation with SECTAGON 42® certain procedures should be observed at designated times in the treatment program. Described in this section are important guidelines for each of the four stages of the treatment process:

Planning a SECTAGON 42® Application

Preparing a Field for Application

Applying SECTAGON 42®

Preparing for Planting after Application of SECTAGON 42®

Your sales representative will help you select the best treatment program for your particular needs.

PLANNING A SECTAGON 42® APPLICATION

Time of Application

Apply SECTAGON 42® after harvest and 14 to 21 days before a new crop is planted. In some areas of North America, fall applications are preferred because the fumes dissipate over the winter, allowing planting to begin as soon as favorable springtime conditions arrive.

Application Rate

Apply 1 to 75 gallons of SECTAGON 42® per treated acre depending on crop, target pest, and soil properties. Soil properties to consider when determining the application rate include the depth of soil to be treated, soil texture and percent organic matter.

Application in Tank Mix with Liquid Fertilizer

SECTAGON 42® may be injected in a mixture with liquid fertilizers. Since the composition of liquid fertilizers vary considerably, the physical compatibility of each fertilizer/SECTAGON 42® tank mix should be checked by using the following procedure:

Mix a small quantity of SECTAGON 42® and liquid fertilizer in a glass container. SECTAGON 42® and fertilizer should be mixed in the same ratio as they will be applied to the field (i.e., if 40 gallons of SECTAGON 42® and 40 gallons of liquid fertilizer are to be applied per acre, then SECTAGON 42® and fertilizer should be mixed in the jar in a 40:40 or 1:1 ratio). Agitate the liquids to attain a complete mixture.

If a uniform mix cannot be made, the mixture should not be used. If the mixture remains uniform for 30 minutes, the combination may be used. Should the mixture separate after 30 minutes, but readily remixes uniformly with agitation, the mixture can be used if adequate agitation is maintained in the tank.

DO NOT PLACE CAPS ON JAR, AS INCOMPATIBLE MIXES MAY EVOLVE HYDROGEN SULFIDE GAS.

USE PROMPTLY AFTER MIXING WITH WATER OR FERTILIZER. DO NOT ALLOW SOLUTION TO STAND.

Flush all equipment with water after each day's use. Disassemble valves and clean carefully.

Target Pest and Depth of Treatment

For suppression of weeds and fungi causing seed or seedling diseases, treatment of only the top 1 to 4 inches of soil may be required. For suppression of nematodes and fungi which occur throughout the rhizosphere, treatment to depths of greater than 4 inches may be required. For a given soil type, the required application rate will increase proportionately with the depth of treatment required.

For example, if 25 gallons of SECTAGON 42® per acre is required to treat 4 inches, then 50 gallons of SECTAGON 42® will be required to treat to a depth of 8 inches. Choose the appropriate application method to distribute SECTAGON 42® evenly throughout the soil to the required depth.

Organic Matter in the Soil

Because of the absorbing effect of humus, soils with high levels of organic matter under the surface require higher than usual doses of SECTAGON 42®. For example, muck soils require twice the amount of fumigant that would be used in mineral soils.

Soil Texture

Application rates will vary with the soil texture. For instance, clay soils require more SECTAGON 42®

than light sandy soil.

Phytotoxicity

SECTAGON 42® is phytotoxic. Protect valuable, non-target plants by stopping soil applications of SECTAGON 42® at least 3 feet short of the drip line of trees, shrubs, and other desirable plants. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

APPLYING SECTAGON 42®

Use of Diluted SECTAGON 42®

Do not store the diluted product. Use SECTAGON 42® promptly after it has been mixed with water. In dilute solutions in water SECTAGON 42® decomposes over a period of days. Although SECTAGON 42® is stable in its concentrated form, it is unstable in acid dilutions.

CHEMIGATION–GENERAL PROCEDURES

When applying by chemigation methods the following precautions must be observed.

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move; flood (basin); furrow; border, or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Posting of areas to be chemigated is required when 1) any part of a treated area is within 300 feet of sensitive areas such as residential areas, labor camps, businesses, day care centers, hospitals, in-patient clinics, nursing homes or any public areas such as schools, parks, playgrounds, or other public facilities not including public roads, or 2) when the chemigated area is open to the public such as golf courses or retail greenhouses.

Posting must conform to the following requirements: Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive areas. When there are no usual points of entry, signs must be posted in the corners of the treated area and in any other location affording maximum visibility to sensitive areas. The printed side of the sign should face away from the treated area toward the sensitive areas. The signs shall be printed in English. Signs must be posted prior to application and must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place indefinitely as long as they are composed of materials to prevent deterioration and maintain legibility for the duration of the posting period.

All words shall consist of letters of at least 2 1/2 inches tall, and all letters and the symbol shall be a color which sharply contrasts with their immediate background. At the top of the sign shall be the words KEEP OUT, followed by an octagonal stop sign symbol of at least 8 inches in diameter containing the word STOP. Below the symbol shall be the words PESTICIDES IN IRRIGATION WATER.

This sign is in addition to any sign posted to comply with the Worker Protection Standard.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

NOTE: Tessenderlo Kerley, Inc. does not encourage connection of chemigation systems to public water systems. The following information is provided for users who have evaluated all alternative application and water source options before choosing to make such a connection.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank measuring of at least twice the inside diameter of the fill pipe.

Do not apply when wind speed favors drift beyond the area intended for treatment.

GENERAL INSTRUCTIONS FOR SPRINKLER SYSTEMS

Application over cover crops: Sectagon 42 can be applied through center pivot or solid set sprinkler systems on cover crops that are living and less than approximately eight inches tall such as alfalfa, clover, green beans, and grasses such as rye, oats, wheat, and sudan. When applied over cover crops, no soil cultivation is required before the application. The terminated crop must not be used for any food or feed purpose after Sectagon 42 has been applied.

NOTICE: Do not operate irrigation systems without safety valves or other devices to prevent back siphoning of SECTAGON 42® into water sources. Irrigation water treated with SECTAGON 42® should be maintained on the treated area until the water is absorbed by the soil. The tank containing SECTAGON 42® must be connected to the discharge side of the irrigation pump or other pressurized equipment attached to the irrigation line. Do not apply in irrigation systems that result in overlapping application of SECTAGON 42®. Do not apply when weather conditions favor drift from target areas.

PREPARING FOR PLANTING AFTER APPLICATION OF SECTAGON 42®

Effect of Rain

If a SECTAGON 42® application is rained on less than 24 hours after treatment, lack of suppression at and near the soil surface may result.

Recontamination

Precautions must be taken to prevent recontamination of treated soil with weed seeds, plant pathogenic fungi and plant parasitic nematodes. Use clean seeds and/or plants. Before farm equipment is driven into the treated area, it should be rinsed free of the untreated soil from other fields.

Interval Between Treatment and Planting

Because SECTAGON 42® can be harmful to germinating and/or living plants, an appropriate interval must be observed between soil fumigation and planting. On well-drained soils which have a light to medium texture and which are not excessively wet or cold following application, planting can begin 14 to 21 days after treatment. If soils are heavy or especially high in organic matter, or if they remain wet and or cold (below 60° F or 15° C) following application, a minimum interval of 30 days should be observed.

Aeration before planting

Soils including soils high in clay or organic matter, should be allowed to aerate and dry thoroughly after treatment with SECTAGON 42® During cold and/or wet weather, frequent shallow cultivation can aid the escape of SECTAGON 42® from the soil.

Testing for Dissipation of SECTAGON 42®

After the waiting period has passed, if there are any questions about the complete escape of SECTAGON 42® from the soil, transplant a seedling into the treated soil. If the plant develops normally without any signs of chemical injury, crop planting can begin.

USES, APPLICATION METHODS & RATES
FIELD APPLICATION WHERE ENTIRE AREA IS BEING TREATED

POWER ROLL SEAL METHOD (NON-TARP)

Use a RO-TO-VATE & ROLL Applicator only. Contact your local agricultural extension service, distributor or the manufacturer for approved RO-TOVATE & ROLL Application specifications.

When to Treat: Apply SECTAGON 42® 2 to 6 weeks prior to planting, whenever soil type and conditions permit. For best results with annual crops, treat the soil each year. Do not use SECTAGON 42® to treat any type of soil when it is cold and/or wet.

Application: Use undiluted SECTAGON 42® to the desired depth below the final soil surface. (Contact your dealer or the manufacturer for the specifications for suitable application equipment).

IMPORTANT SOIL TREATMENT PRECAUTIONS

Crops to be hilled: For crops that require soil movement (hilling) prior to or after planting, incorporate SECTAGON 42® to a depth that will allow the tillage required to occur without penetrating below the depth of treatment.

Crops to be bedded: For crops to be bedded, care must be taken that exposed sides of raised beds are not cracked or open compared to the power rolled surface. If necessary, add power rollers of the required height or other sealing equipment to the ends of the bedding equipment to seal the sides.

Note: The use of SECTAGON 42® for the suppression of weeds, weed seeds and shallow inhabiting soil fungi requires that NO SOIL CULTIVATION OCCUR FOLLOWING TREATMENT until time of planting.

This method of treating soil with SECTAGON 42® will not be effective for the suppression of nematodes outside the treated zone. This method of SECTAGON 42® application can be used in combination with other soil fumigants to suppress the nematodes persisting in the surface 1 to 6 inches of soil normally not suppressed with injected soil fumigants.

Zone of treatment will be limited by diameter of applicator. If pest is deeper than applicator can treat to, use a different method. For further information contact your local agricultural extension service or the manufacturer.

SOIL INJECTION

Use injectors (shanks, blades, fertilizer wheels, plows, etc.) to apply SECTAGON 42® at the rate of 15 to 75 gallons per acre into well prepared soil. Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil.

Example: apply through injectors placed 4 inches below surface and 5 inches apart.

SPRINKLER SYSTEM

Use only those sprinkler systems which give large water droplets to prevent excess loss. Use 37.5 to 75 gallons SECTAGON 42® per acre for suppression of nematodes and fungi at a depth of 24 inches. For suppression of weeds and fungi at a depth of 8 inches or less, use 15 to 75 gallons per acre. Inject the SECTAGON 42® in enough water to reach to desired treatment depth. The product should be continuously metered into the irrigation system throughout the entire application period. Flush the system with only enough water to clear lines. If the soil surface dried quickly, reseal it with 15 minutes of water once a day for the next day or two.

To prevent runoff of treatment solution during sprinkler application, do not exceed the infiltration rate of the solution into the soil. Should runoff occur, isolate it from growing crops and water sources. Once collected, reapply it to the treated area. See use precautions in "CHEMIGATION" section.

CHECK OR FLOOD IRRIGATION

Meter SECTAGON 42® at a steady rate into water during irrigation. Use 40 to 75 gallons of SECTAGON 42® per acre, depending upon the kind of pest and depth desired, in 3 to 18 inches of water per acre. See use precautions in "CHEMIGATION" section.

DISC APPLIED METHOD

Spray SECTAGON 42® immediately in front of disc. Use 15 to 75 gallons per acre. Follow immediately with a roller to smooth and compact the soil surface.

DRIP IRRIGATION

SECTAGON 42® may be injected into drip irrigation systems prior to planting. The area must be calculated in accordance with the size of the band treated. Apply 40 gallons per broadcast acre in one acre inch of water (27,000 gallons). The resulting concentration is 700 ppm on a weight basis. (Example: if the emitters irrigate 10% of each acre then use 5 gallons SECTAGON 42® in 2,700 gallons water). Inject continuously. Do not slug treat. See use precautions in "CHEMIGATION" section.

APPLICATION TO BED OR ROWS

POWER ROLL SEAL METHOD (NON-TARP)

Use a modified RO-TO-VATE & ROLL Applicator only. Contact your local agricultural extension service, distributor or the manufacturer for approved RO-TO-VATE & ROLL Applicator specifications.

When to treat: Apply SECTAGON 42® 2 to 6 weeks prior to planting whenever soil type and conditions permit. For best results with annual crops, treat the soil each year. Do not use SECTAGON 42® to treat any type of soil when it is cold and/or wet.

Application: Use undiluted SECTAGON 42.® Apply with suitable application equipment that will ensure incorporation of SECTAGON 42® to the desired depth below the final soil surface. (Contact your dealer or the manufacturer for the specifications for suitable application equipment).

IMPORTANT SOIL TREATMENT PRECAUTIONS

Crops to be hilled: For crops that require soil movement (hilling) prior to or after planting, incorporate SECTAGON 42® to a depth that will allow the tillage required to occur without penetrating below the depth of treatment.

Crops to be bedded: For crops to be bedded, care must be taken that exposed sides of raised beds are not cracked or open compared to the power rolled surface. If necessary, add power rollers of the required height or other sealing equipment to the ends of the bedding equipment to seal the sides.

Note: The use of SECTAGON 42® for the suppression of weeds, weed seeds and shallow inhabiting soil fungi requires that NO SOIL CULTIVATION OCCUR FOLLOWING TREATMENT until time of planting.

This method of treating soil with SECTAGON 42® will not be effective for the suppression of nematodes outside the treated zone. This method of SECTAGON 42® application can be used in combination with other soil fumigants to suppress the nematodes persisting in the surface 1 to 6 inches of soil normally not suppressed with injected soil fumigants.

Zone of treatment will be limited by diameter of applicator. If pest is deeper than applicator can treat to, use a different method. For further information contact your local agricultural extension service or the manufacturer.

SOIL INJECTION

SECTAGON 42® at the rate of 50 to 75 gallons per treated acre (1 to 1.5 pints per 100 sq. ft.), may be injected into preformed plant beds following the directions given above under soil injection. If a wider treated band is desired, space 2 or more injectors (shanks, blades, fertilizer wheels, etc.) at desired intervals to cover the desired treating width. Seal immediately.

If SECTAGON 42® is injected into established plant beds through plastic tarps to terminate growth of a previous crop, and to fumigate the bed in preparation for planting a subsequent crop, the terminated crop should not be used for any food or feed purposes after SECTAGON 42® has been applied.

SOIL COVERING METHOD (BED-OVER METHOD)

SECTAGON 42® may be sprayed or dripped onto the soil immediately ahead of bed-shaping equipment. Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil. The recommended rate of SECTAGON 42® is 40 to 75

gallons per acre of treated soil, approximately equivalent to .5 to 1.5 pints per 100 linear ft. of 12-inch wide row.

DRIP IRRIGATION

During pre-irrigation, check drip tape for uniform distribution and repair if necessary. Apply 15 to 75 gallons SECTAGON 42® per treated acre (0.25 to 1.5 pints per 100 sq. ft. of treated soil) using enough water to thoroughly wet entire desired treatment zone. During the entire irrigation period, inject SECTAGON 42® continuously into drip line as close as possible to treatment area. Two or more lines per bed may be needed to ensure full coverage.

Weed suppression will not be satisfactory if too much water is applied. An adequate concentration of SECTAGON 42® must be present at the time of weed seed germination in order to be effective. See use precautions in "CHEMIGATION" section.

DRENCH METHOD

SECTAGON 42® may be applied to finished beds in enough water to soak at least 2 inches deep for suppression of shallow seeded weeds. To avoid contamination by untreated soil, do not disturb the treated area. Apply 15 to 75 gallons of SECTAGON 42® per treated acre.

ADDITIONAL RECOMMENDATIONS

TOBACCO PLANT BEDS

Fall applications are recommended wherever possible. Read and follow DIRECTIONS FOR USE carefully. Treatment in the South should generally be made before November 30.

A. TARP METHOD: Prepare the bed 5 to 7 days before application to insure best conditions for weed seed germination and fumigant action of SECTAGON 42.® Apply 1 to 1¼ gallons of SECTAGON 42® in a minimum of 40 gallons of water per 100 sq. yds. Apply uniformly over the entire bed. Cover the bed immediately with a plastic cover. The cover need not be tented, but should be secured to prevent wind from uncovering the treated area. Seven days after date of SECTAGON 42® application, loosen the treated soil to a depth of 2 inches. Do not seed tobacco earlier than 21 days after SECTAGON 42® application.

B. DRENCH METHOD: Apply 2 gallons SECTAGON 42® in 150 to 200 gallons of water per 100 sq. yd. Application may be made with sprinklers, sprayers with nozzles or any suitable equipment. Follow directions given above for seed bed treatment.

SYMPHYLID SUPPRESSION

Soil should be in good seed bed condition to a depth of 8 to 10 inches. Maintain adequate moisture during spring season. Treat during July-August when symphylids are in the upper soil surface. Apply 15 gallons SECTAGON 42® per acre using blade or chisel injector. Inject below level of symphylid concentration, usually 6 to 8 inches. Pack soil immediately after application.

NOTE: SECTAGON 42® will only suppress nematodes which are in the fumigated zone at the time of treatment.

POTATOES

For suppression of potato pests such as Root knot nematodes, Weed seeds, Verticullum dahlias (Early maturity disease).

Apply 30 to 75 gallons SECTAGON 42® per acre using injectors (shanks, blades, fertilizer wheels, plows, etc.) Follow immediately with a bedshaper, roller press wheel or similar device or cover with an adequate amount of soil to seal the fumigant into the soil.

Sprinkler system preplant application - Use 37.5 to 75 gallons of SECTAGON 42® per acre. Inject into a sprinkler system that can deliver an even water distribution for the area being treated. Inject all of the SECTAGON 42® needed for the area covered and apply in enough water to reach the desired treatment depth. Soil temperature should be in the range of 40° F to 90° F in the treatment zone. Soil moisture immediately prior to treatment must be 60 to 80% of field capacity down to 24" level. SECTAGON 42® may be applied where crop stubble or vegetation exists without prior fillage, provided there is adequate

soil penetration of SECTAGON 42.® Soil condition must facilitate even moisture penetration without runoff. Do not apply when plants are present. See use precautions in "CHEMIGATION" section.

NOTE: SECTAGON 42® will suppress Root knot nematodes in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that SECTAGON 42® achieves at the time of application.

If high numbers or deep nematodes are identified, anticipate nematodes to build up throughout the growing season. Some damage will occur unless additional action is taken.

SECTAGON 42® has no soil residual and reinfestation of a field can occur from numerous sources such as deep nematode populations, seed pieces, irrigation water, equipment contamination and blowing wind.

EARLY MATURITY DISEASES OF POTATOES IN OREGON

Apply 30 gallons SECTAGON 42® per acre using injectors (shanks, blades, fertilizer wheels, plows, etc.) Follow immediately with a bedshaper, roller press wheel or similar device or cover with an adequate amount of soil to seal the fumigant into the soil.

NOTE: SECTAGON 42® will suppress Root knot nematodes in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that SECTAGON 42® achieves at the time of application.

MINT

Verticilium wilt control.

When infestation is limited to small spots in a field, spread can be reduced by treating the soil with 75 gallons SECTAGON 42® per treated acre (1½ pints per 100 sq. ft.) using injector blade or thin shank injector rig with injectors spaced at intervals to cover the desired treating width.

WHEAT AND BARLEY

For suppression of certain root diseases caused by Early season soil fungi – before applying SECTAGON 42® cultivate the area to be treated to break up clods. Apply 2 to 7.5 gallons per treated acre 14 to 21 days before planting. SECTAGON 42® may be diluted with water or non-acidic liquid fertilizer immediately before applying. Inject SECTAGON 42® to a depth of 5 to 8 inches into moist soil. Space injector shanks at intervals to cover the desired treating width.

Do not mix SECTAGON 42® with acidic fertilizer or other acidic solutions. For best results, moisture in the treated zone should be 60% of field capacity or more.

Use only in areas which receive 15 or more inches of rainfall per year.

PEANUTS

Cylindrocladlium Black Rot (CBR) Suppression:

Apply SECTAGON 42® at the following rates:

CBR-resistant cultivar (NC8C): 7.5 gallons per treated acre or 4 pints per 1,000 feet of treated row CBR-susceptible peanut cultivars (Florigant, GK-3, NC-5 Keel 29): 15 gallons per treated acre or 8 pints per 1,000 feet of treated row.

CBR-highly susceptible cultivars (VA 81B, NC7): use of SECTAGON 42® is not recommended.

Soil Preparation: Before applying SECTAGON 42,® residue from the previous crop should be decomposed (enhanced by fall discing) and plowed under in the spring with mold-board plow. Soil incorporated preplant herbicides must be applied before application of SECTAGON 42®.

Application: Apply SECTAGON 42® with a gravity flow regulator through chisel-type or counter-type applicators. Center each applicator, one per row, in front of a bedshaper to mark the location of chemical deposition. SECTAGON 42® should be deposited 6 to 8 inches below the soil surface of beds. Bed and applicator spacing should coincide with row spacing at planting. Soil temperatures must be in the range of 60° F to 90°F at injection-depth before application.

Tillage and Planting after Application: Do not mix treated soil with untreated soil by tillage or other cultural practices. Plant peanuts in the center of treated beds no earlier than 14 days following application of SECTAGON 42® An at-planting nematicide treatment will be necessary in fields with heavy infestation

of Root knot, Ring and/or String nematode.

FOR SUPPRESSION OF SPECIFIC ORCHARD DISEASES (SUCH AS SPECIFIC APPLE REPLANT DISEASE)

Use 62 to 75 gallons of Sectagon 42® per treated acre. It is best to have the replant site prepared to a planting consistency which includes irrigating to 70% field capacity before Sectagon 42® application. Treatment can be made in the Fall or Spring before planting but Fall application is the preferred timing. Spring application can be riskier because the interval between treatment and planting is critical; see CAUTIONS listed below. Do not harvest fruit within one (1) year of application.

There are three application techniques that may be used: 1) Entire orchard site, 2) Individual tree row site, and 3) Individual tree plant site.

Entire orchard site: Inject the desired amount of Sectagon 42® into a sprinkler system to treat the entire replant site. Figure the irrigation schedule required to cover the desired treatment depth. Start the irrigation system and inject the Sectagon 42® one-third to one-half way through the cycle making sure to leave enough time at the end of the cycle to seal the application with plain water.

Individual tree row site: Two methods of application may be used to apply Sectagon 42® to individual tree row sites: Method One is to apply Sectagon 42® through a portable irrigation system such as a sprinkler or drip system; Method Two is to apply the desired amount of Sectagon 42® through a weed sprayer while the irrigation system is running. For either method and after identifying the position of the future tree row site, apply Sectagon 42® one-third to one-half way through the required irrigation cycle leaving enough time at the end of the cycle to apply plain water, sealing the Sectagon 42® in the ground.

Individual tree plant site: Use 18 to 24 fluid ounces of Sectagon 42® per 100 gallons of water. Use 16 gallons of this solution in a 4 by 4 foot planting hole. Water and product amount adjustments can be made to accommodate different size planting holes to ensure product movement to desired depth. Replace dirt removed.

TARPING: Tarping of replant sites is required when near (1/2 mile) to populated areas, such as schools, hospitals, commercial or office buildings, factories, residential areas, etc. Tarping is not required if treatment is farther than 1/2 mile from such populated areas.

CAUTIONS: INTERVAL BETWEEN TREATMENT AND PLANTING

Because Sectagon 42® is harmful to living plants, an appropriate interval must be observed between Sectagon 42® application and planting. On well-drained soils which have a light to medium texture and are not excessively wet or cold following application, planting can begin 21 to 30 days after treatment. If soils are heavy or especially high in organic matter or if they remain wet and/or cold (below 60 degrees F) following application, a minimum interval of 30 to 45 days should be observed. Where the dosage approaches the 75 gallons per acre rate, wait at least 60 days.

HARVEST OF ANY FRUIT WITHIN ONE (1) YEAR OF TREATMENT IS PROHIBITED.

CONDITIONS OF SALE–LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES

The directions on this label are believed to be reliable and should be followed carefully. Insufficient control of pests and/or injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions, the failure to follow the label directions, or good application practices, all of which are beyond the control of Tessenderlo Kerley, Inc., or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. Tessenderlo Kerley, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use, subject to the factors noted above which are beyond the control of Tessenderlo Kerley, Inc. Tessenderlo Kerley, Inc. makes no other warranties or representations of any kind, express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose. The exclusive remedy against Tessenderlo Kerley, Inc. for any cause of action relating to the handling or use of this product is a claim of damage, and in no event shall damages or any other recovery of any kind against Tessenderlo Kerley, Inc. exceed the price of the product which causes the alleged loss, damage, injury, or other claim. Tessenderlo Kerley, Inc. shall not

be liable and any and all claims against Tessenderlo Kerley, Inc. are waived, for special, indirect, incidental, or consequential damages or expense of any nature, including, but not limited to, loss of profits or income, whether or not based on the negligence of Tessenderlo Kerley, Inc. breach of warranty, strict liability in tort, or any other cause of action. Tessenderlo Kerley, Inc. and the seller offer this product, and the buyer and users accept it, subject to the foregoing conditions of sale and limitations of warranty, liability and remedies.

EPA 20090930

ACCEPTED
with COMMENTS
In EPA Letter Dated
MAY 13 2010
Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No. 61842-6

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.

SECTAGON 42®

FUMIGANT SOLUTION FOR ~~ALL~~ SPECIFIC CROPS AS LISTED:

For suppression of: Nematodes, Fungi, Bacteria, Weeds, Weed seeds and Volunteer seeds.

42.2% SODIUM METHYLDITHIOCARBAMATE

ACTIVE INGREDIENT:	
Sodium methyldithiocarbamate (anhydrous)	42.2%
OTHER INGREDIENTS:	57.8%
TOTAL:	100.0%

Contains 4.22 lbs. active ingredient per gallon.

EPA Reg. No. 61842-6 **EPA Est. No.**

KEEP OUT OF REACH OF CHILDREN

DANGER PELIGRO

READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH LABEL WARNINGS AND DIRECTIONS

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

FIRST AID

If 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 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 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 or doctor. Do not give anything by mouth to an unconscious person.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-866-374-1975 for emergency medical treatment information.

NOTE TO PHYSICIAN

Probable mucousal damage may contraindicate the use of gastric lavage.

Manufactured by:
Tessenderlo Kerley, Inc.
2255 North 44th Street, Suite 300
Phoenix, Arizona 85008-3279
1-800-525-2803

Net Contents:

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
DANGER

- Corrosive: causes skin damage. May be fatal if absorbed through the skin. Do not get on skin or clothing.
- Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals.
- Harmful if swallowed.
- Harmful if inhaled. Irritating to eyes, nose, and throat. Avoid breathing vapor or spray mist.
- Irritating to eyes. Do not get in eyes.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are barrier laminate or viton ≥ 14 mils. For more options, follow the instructions for category H on an EPA chemical resistance category selection chart.

Handlers applying via weed sprayer while irrigation sprinklers are running or handlers who may be exposed to liquid spray while repairing a malfunctioning chemigation system or shutting off equipment must wear:

- chemical-resistant coveralls over long-sleeve shirt and long pants,
- chemical-resistant gloves,
- chemical-resistant footwear plus socks,
- chemical-resistant headgear,
- protective eyewear, and
- respirator of the type specified in the respiratory protection section in the PPE requirements on this label.

Handlers wearing chemical-resistant attire are limited to 30 minutes of exposure in any 60 minute period to prevent heat illness, and, as required by the Worker Protection Standard for Agricultural Pesticides, employers of these handlers must take any necessary steps to avoid heat illness.

Except as required above, handlers transferring or loading liquid formulations, handlers operating motorized ground equipment with open cabs, handlers repairing or inactivating irrigation or chemigation equipment during application, and handlers cleaning up spills or equipment, must wear:
-- coveralls over long-sleeve shirt and long pants,
-- chemical resistant gloves,
-- chemical resistant footwear plus socks,
-- chemical-resistant apron if transferring or loading the fumigant or cleaning up spills or equipment,
-- protective eyewear, and
-- respirator of the type specified in the PPE requirements for respiratory protection section in the PPE requirements on this label if triggered.

All other handlers (except for fumigant handlers who set up and calibrate chemigation and irrigation equipment and start the application from inside the application block) as stated in this labeling must wear:
-- long-sleeve shirt and long pants,
-- shoes plus socks, and
-- respirator of the type specified in the eye and respiratory protection section in the PPE requirements on this label if triggered.

All handlers who set-up and calibrate chemigation and irrigation equipment and start the application from inside the application block must wear:
-- long-sleeve shirt and long pants,
-- shoes plus socks,
-- protective eyewear, and
-- respirator of the type specified in the respiratory protection section in the PPE requirements on this label if triggered.

PERSONAL PROTECTIVE EQUIPMENT (PPE) FOR RESPIRATORY PROTECTION

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).

~~(1) Handlers Performing Direct-Contact Tasks~~

~~Direct-contact tasks include:~~

- ~~mixing, loading, or fumigant transfer with or without dry-disconnect fittings.~~
- ~~equipment calibration or adjustment~~
- ~~equipment cleanup and repair~~
- ~~product sampling~~
- ~~application or soil-sealing outside an enclosed cab~~
- ~~any activity less than 6 feet from an unshielded pressurized hose containing this product~~
- ~~spill cleanup~~
- ~~removal of tarp or plastic film~~
- ~~rinsate disposal~~
- ~~cleanup of small spills~~
- ~~preparing containers for aeration~~
- ~~any other handling task not otherwise listed in (2) or (3) below~~

~~Applicators and other handlers performing direct-contact activities must wear:~~

- ~~Coveralls over long-sleeved shirt and long pants~~
- ~~Chemical-resistant gloves~~
- ~~Chemical-resistant footwear plus socks~~
- ~~Chemical-resistant headgear for overhead exposure~~
- ~~Chemical-resistant apron when cleaning equipment, or when mixing, loading, or transferring without dry-disconnect fittings~~
- ~~Face-sealing goggles, unless full-face respirator is worn~~
- ~~A respirator with either 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 N, R, P or HE prefilter.~~

~~(2) Handlers in Enclosed Cabs~~

~~Applicators and other handlers in enclosed cabs must wear:~~

- ~~Coveralls~~
- ~~Shoes and socks~~

~~Plus,~~ ~~if pungent, rotten-egg odor of this product can be detected inside the enclosed cab, the handlers in the cab must wear:~~

- ~~Face-sealing goggles, unless full-face respirator is worn~~
- ~~A respirator with either 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 N, R, P or HE prefilter.~~

~~In addition, the PPE specified in (1) for direct-contact activities must be immediately available in the enclosed cab and must be worn if the handler leaves the enclosed cab to perform any direct-contact activity.~~

~~The enclosed cab must meet the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides 40 CFR 170.240(d)(5).~~

~~(3) Handlers in Treated Areas While Entry is Restricted~~

~~While entry is restricted (see "Entry Restrictions" in the Agricultural Use Requirements box elsewhere in~~

~~this labeling), only the following handling tasks may be performed in a treated area outdoors:~~
~~• Assessing/adjusting the soil seal~~
~~• Assessing pest control, application technique, or application efficacy~~
~~• Sampling air or soil for this product~~

~~All other tasks are prohibited until the entry restriction is over.~~

~~**Handlers performing the above tasks must wear:**~~
~~• Coveralls over long-sleeved shirt and long pants~~
~~• Chemical resistant gloves made of any waterproof material~~
~~• Chemical-resistant footwear and socks~~
~~**Plus:** If pungent, rotten-egg odor of this product can be detected outdoors, handlers must wear:~~
~~• Face-sealing goggles (unless full-face respirator is worn) and~~
~~• A respirator with either 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 N, R, P or HE prefilter.~~

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.

~~1. Respirator Requirements:~~
~~When a respirator is required for use with this product, the following criteria must be met:~~
~~a. Cartridges or canisters must be replaced daily or when odor or irritation from this product becomes apparent, whichever is sooner.~~
~~b. Respirators must be fit tested and fit checked using a program that conforms to OSHA's requirements (described in 29 CFR Part 1910.134).~~
~~2. Dispose of Contaminated Clothing:~~
~~Discard clothing and other absorbent materials that have been drenched or heavily contaminated with liquid from this product. Do not reuse them.~~
~~3. Clean and Maintain PPE: Follow manufacturer's instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separate from other laundry. Wash PPE after each day's use.~~

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 mammals, birds, aquatic invertebrates and fish. 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 wash waters or rinsate.

Metam-sodium and metam-potassium have certain properties and characteristics in common with chemicals that have been detected in groundwater (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. Apply this product only as specified on this label.

USE PRECAUTIONS

Keep off desirable lawns and plants. Do not apply within 3 feet of the drip line of desirable plants, shrubs or trees. Do not use in confined areas without adequate ventilation OR where fumes may enter nearby dwellings. Do not use in greenhouses. Keep container tightly closed when not in use. Do not store near feed or food.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in a cool, dry place, keep container closed when not in use. Do not store below 0° F. Product crystallizes at lower temperatures. Warm or store at higher temperatures and mix to redissolve crystals and assure uniformity before use.

Do not stack more than three drums high. Leaking or damaged drums should be placed in overpack drums for disposal. Spills should be absorbed in sawdust or sand and disposed of in a sanitary landfill. Keep container closed when not in use.

PESTICIDE DISPOSAL: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instruction, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL:
[NON-REFILLABLE CONTAINERS]

Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Then offer for recycling if available 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.

[REFILLABLE CONTAINERS]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available 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.

NOTE OF WARNING: CONTAINER IS NOT SAFE FOR FOOD, FEED OR DRINKING WATER!

DIRECTIONS FOR USE

For suppression of: Nematodes, Fungi, Bacteria, Weeds, Weed seeds and Volunteer seeds.

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.

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 or, for center pivot applications which occur over many days, the total acres of a field treated and not separated by a 12 hour interruption) 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 (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, operating or removing irrigation equipment in the 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:
  - **o** until 14 days after application is complete if tarps are not perforated and removed during those 14 days, or
  - **o** until tarp removal is complete if tarps are **both** perforated **and** removed less than 14 days after application; or
  - **o** until 48 hours after tarps perforation is complete if they will not be removed within 14 days after application.

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

- Performing any handling tasks as defined by the Worker Protection Standard
- In addition to the above, persons outside the perimeter of the application block who visually monitor application equipment to ensure proper functioning and monitor fumigant air concentration in accordance with the fumigant site monitoring requirement must also be trained and equipped as handlers in accordance with the requirements in the Worker Protection Standard (40 CFR Part 170).

PROTECTION FOR HANDLERS

For all applications except water run: 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 all water-run applications (e.g., sprinkler/chemigation, wheel line, center pivot, lateral move, drip, flood, etc.), the certified applicator must be at the fumigation site in the line of sight of the application to start the application including set-up, calibration, and initiation of the application. The certified applicator may leave the site but must return at least every two hours to visually inspect the equipment to ensure

proper functioning and must directly supervise all Worker Protection Standard trained handlers on-site until the fumigation has stopped being delivered/dispersed into the soil. Worker Protection Standard-trained handlers may perform the monitoring functions in place of the certified applicator but must be under the supervision of the certified applicator and able to communicate with the certified applicator at all times during monitoring activities via cell phone or other means. The results of monitoring activities must be captured in the Fumigant Management Plant (FMP).

For 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.

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.

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.

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

The fumigation handler employer must confirm and document in the FMP 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.

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.

RESPIRATORY PROTECTION AND STOP WORK TRIGGERS

The following procedures must be followed to determine whether an air-purifying respirator is required or if operations must cease for any person performing a handling task as defined in this labeling.

- If at any time any handler experiences sensory irritation (tearing, burning of the eyes or nose) then either:
  - o An air-purifying respirator must be worn by all handlers who remain in the application block, or
  - o Operations must cease and handlers not wearing an 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 an air-purifying respirator, or (2) an air sample is greater than or equal to 6,000 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 respiratory protection, 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 respirator must be worn by the handler taking the air samples. Samples must be taken where the irritation is experienced.
- Work activities can resume if the following conditions exist provided that the appropriate air-purifying respirator is worn:
  - o Two consecutive breathing zone samples for MITC taken at the handling site at least 15 minutes apart must be less than 6,000 ppb,
  - o Handlers do not experience sensory irritation while wearing the air-purifying respirator, and
  - o Cartridges have been changed.
  - o 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."

TARP PERFORATION AND/OR REMOVAL

IMPORTANT: Persons perforating, repairing, removing, and/or monitoring tarps are defined, within certain time limitations, as handlers (see definition of fumigant handlers 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:
  - o At the beginning of each row when a coulter blade (or other device which performs similarly) is used on a motorized vehicle such as an ATV.
  - o In fields that are 1 acre or less.
  - o 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:
  - o 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.
  - o 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
  - o Tarp perforation is allowed before the 5 days (120 hours) have elapsed if rain necessitates field drainage.
  - o Tarps must be immediately retucked and packed after soil removal.

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.

~~**CALIFORNIA ONLY:** Application must be in compliance with Technical Information Bulletin - California "Guidelines For All Application Methods For Metam Sodium in California." This information bulletin may be obtained from your local pesticide dealer or a metam-sodium registrant. **Proposition 65 (CA Only):** WARNING: This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. **22 California Code of Regulations § 12601(d)(3).**~~

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

For entry restricted period and notification requirements, see the *Entry Restricted Period* section of this labeling.

ENTRY-RESTRICTED PERIOD

Entry (including early entry that would otherwise be permitted under the Worker Protection Standard) 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
• 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 REQUIREMENT

Notify workers of the application by warning them orally and by posting Fumigant Treated Area signs. The signs must bear the skull and crossbones symbol and state:
-- "DANGER/PELIGRO,"
--"Area under fumigation, DO NOT ENTER/NO ENTRE,"
-- "Metam Sodium fumigation in Use."
-- the date and time of fumigation,
-- the date and time entry restricted period is lifted,
-- brand name of this product (Sectagon 42), and
-- name, address, and telephone number of the certified applicator in charge of the fumigation.

Post the Fumigant Treated Area sign instead of the Worker Protection Standard sign for this application but follow all Worker Protection Standard 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 field or portion of a field treated with a fumigant in any 24-hour period or, for center pivot applications with occur over many days, the total acres of a field treated and not separated by a 12 hour interruption).

MANDATORY GOOD AGRICULTURAL PRACTICES (GAP):

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.

Shank Applications

Wind Speed
• 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.

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 exist or are predicted (see *(Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
• 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.

• Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions, Injection Depth, and Soil Sealing

• Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant application. The soil must be tilled, at a minimum to the depth of the treatment zone.

• Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

For applications: The injection point for bedded and broadcast applications shall be a minimum of 3 inches from the final soil/air interface. Chisel traces must be eliminated following an application and the soil surface must be sealed immediately after application using one of the following methods:

• Compaction with a bed-shaper, roller, press wheel or similar device, OR
• Covering the treated soil with 3-6 inches of untreated soil, OR
• Applying a minimum of a ½-inch of water beginning immediately after application of a set and completing the water treatment within four hours, OR
• Covering treated area with a tarp.

Tarps

• When tarps are used for emission control, tarps must be installed immediately after application.
• When tarps are used, a written tarp plan must be developed and included in the FMP that includes:

- o Schedule and procedures for checking tarpaulins for damage, tears, and other problems,
- o Plans for determining when and how repairs to tarp will be made, and by whom,
- o Minimum time following injection that tarp will be repaired,
- o Minimum size of damage that will be repaired,
- o Other factors used to determine when tarp repair will be conducted,
- o Schedule, equipment and methods used to cut tarp,
- o Aeration plans and procedures following cutting and /or slitting prior to tarp removal or planting, and
- o Schedule, equipment, and procedures for tarp removal.

Soil Temperature

- At the beginning of the application, the maximum soil temperature at the point of injection is 90 degrees F.

- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisture in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application, subject to the exception below.
• EXCEPTION: In areas where soil moisture must exceed field capacity to form a bed *(e.g.*, certain regions in Florida), soil capacity may exceed the 80% allocated above.

•If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.
• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

• Do not apply or allow fumigant to drain or drip onto the soil surface. Injectors must be placed below the soil surface before product flow begins. For each injection line either have a check valve located as close as possible to the final injection point, or drain/purge the line of any remaining fumigant prior to lifting injection shanks from the ground. Do not lift injection shanks from the soil until the shut-off valve has been closed and the fumigant has been depressurized (passively drained) or purged (actively forced out via air compressor) from the system.
• Application equipment must be in good working order.

• All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
• Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.
• Sight gauges and pressure gauges must be working.
• Nozzles and metering devices must be the correct size and sealed and unobstructed.
• Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
• Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
• For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
• All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor pilot during application to prevent backflow of the fumigant into the pressurizing cylinder.
• All rigs must include a flow meter or a flow monitoring device.
• All rigs must have a constant pressure system with orifice plates to insure the proper amount of fumigant is applied.
• Valves, vacuum relief valves, and low pressure drains must be in place, operational, and leak free.
• Interlocking controls must be installed and functioning.
• Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.
• Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
- Check the filter, and clean or replace the filter element as required.
- Check all tubes and chisels to make sure they are free of debris and obstructions.
- Check and clean the orifice plates.

Spray Blade Applications (includes bed-top blade and soil cap applications)

Wind Speed

• 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.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
• 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.
• Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions, Injection Depth, and Soil Sealing

- Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant application. The soil must be tilled, at a minimum to the depth of the treatment zone.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Apply the product on the soil immediately ahead of the bed-shaping equipment. The soil surface must be compacted immediately after application using one of the following methods:

- Compaction with a bed-shaper, roller, press wheel or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a ½-inch of water beginning immediately after application of a set and completing the water treatment within four hours, OR
- Covering treated area with a tarp.

Tarps

- When tarps are used for emission control, tarps must be installed immediately after application.
- When tarps are used, a written tarp plan must be developed and included in the FMP that includes:
  - o Schedule and procedures for checking tarpaulins for damage, tears, and other problems,
  - o Plans for determining when and how repairs to tarp will be made, and by whom,
  - o Minimum time following injection that tarp will be repaired,
  - o Minimum size of damage that will be repaired,
  - o Other factors used to determine when tarp repair will be conducted,
  - o Schedule, equipment and methods used to cut tarp,
  - o Aeration plans and procedures following cutting and /or slitting prior to tarp removal or planting, and
  - o Schedule, equipment, and procedures for tarp removal.

Soil Temperature

- At the beginning of the application, the maximum soil temperature at the point of injection is 90 degrees F.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

- The soil moisturing in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application, subject to the exception below.
- EXCEPTION: In areas where soil moisture must exceed field capacity to form a bed *(e.g.*, certain regions in Florida), soil capacity may exceed the 80% allocated above.

•If appropriate measure equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.
• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

- Do not apply or allow fumigant to drain or drip onto the soil surface
- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.
- Sight gauges and pressure gauges must be working.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor pilot during application to prevent backflow of the fumigant into the pressurizing cylinder.
- Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

Rotary Tiller Applications

Wind Speed

- 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.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
- 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.
- Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions, Injection Depth, and Soil Sealing

- Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant application. The soil must be tilled, at a minimum to the depth of the treatment zone.
- Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Apply the product on the soil immediately ahead of the tiller. The soil surface must be compacted immediately after application using one of the following methods:

- Compaction with a bed-shaper, roller, press wheel or similar device, OR
- Covering the treated soil with 3-6 inches of untreated soil, OR
- Applying a minimum of a ½-inch of water beginning immediately after application of a set and completing the water treatment within four hours, OR
- Covering treated area with a tarp.

Tarps

- When tarps are used for emission control, tarps must be installed immediately after application.

• When tarps are used, a written tarp plan must be developed and included in the FMP that includes:

- o Schedule and procedures for checking tarpaulins for damage, tears, and other problems,
- o Plans for determining when and how repairs to tarp will be made, and by whom,
- o Minimum time following injection that tarp will be repaired,
- o Minimum size of damage that will be repaired,
- o Other factors used to determine when tarp repair will be conducted,
- o Schedule, equipment and methods used to cut tarp,
- o Aeration plans and procedures following cutting and /or slitting prior to tarp removal or planting, and
- o Schedule, equipment, and procedures for tarp removal.

Soil Temperature

- At the beginning of the application, the maximum soil temperature at the point of injection is 90 degrees F.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisture in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application, subject to the exception below.
• EXCEPTION: In areas where soil moisture must exceed field capacity to form a bed *(e.g.*, certain regions in Florida), soil capacity may exceed the 80% allocated above.

•If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.

• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

• Do not apply or allow fumigant to drain or drip onto the soil surface
• Application equipment must be in good working order.
• All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
• Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.
• Sight gauges and pressure gauges must be working.
• Nozzles and metering devices must be the correct size and sealed and unobstructed.
• Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
• Each nozzle must be equipped with a flow monitor, e.g. mechanical, electronic, or Red-ball type monitor.
• For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
• All rigs must include a filter to remove any particulates from the fumigant, and a check valve that is visible to the tractor pilot during application to prevent backflow of the fumigant into the pressurizing cylinder.
• Before using a fumigation rig for the first time, or when preparing it for use after storage, the operator must check the following items carefully:
  - Check the filter, and clean or replace the filter element as required.
  - Check all tubes and chisels to make sure they are free of debris and obstructions.
  - Check and clean the orifice plates.

Center Pivot Applications

Wind Speed

• For mid-release, high-release and end-gun sprinkler or chemigation applications as defined by U.S. EPA, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.
• For low-release height solid-stream sprinkler or chemigation applications as defined by U.S. EPA, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 25 mph.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
• 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.
• Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

• Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, tillage to fracture these layers must occur. The soil must be tilled before or during the application, at a minimum to the depth of the intended treatment zone.

• Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Except when applying over cover crops as set forth in the General Instructions for Sprinkler System, crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisture in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application.

•If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.

• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Flushing Irrigation Lines

• Do not allow fumigant to remain in the irrigation system after the application is complete. After application of the fumigant, flush the injection and irrigation system with untreated water. The flush time must be adequate to purge the fumigant from the injection and irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal.

Application and Equipment Considerations

• Anti-siphon and back-flow prevention devices must be installed and in working order.

• Use only tanks constructed with materials approved for handling metam. Tanks must be inspected, in good condition, and not past their life expectancy to ensure product does not spill or leak.

• Tanks must have proper pesticide labels on them.

• All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.

• Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.

• Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.

• For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.

• The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

• The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.

• The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

• The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

• The irrigation line or water pump must include a functional pressure switch that will stop the motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

• Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Solid Set Sprinkler Applications

Wind Speed

• Wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.

• 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.

• Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

• Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, the soil must be tilled, at a minimum to the depth of the treatment zone.

• Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Except when applying over cover crops as set forth in the General Instructions for Sprinkler Systems, crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisture in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application.

•If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA

Feel Method test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.

• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Flushing Irrigation Lines

• Do not allow fumigant to remain in the irrigation system after the application is complete. After application of the fumigant, flush the injection and irrigation system with untreated water. The flush time must be adequate to purge the fumigant from the injection and irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal.

Application and Equipment Considerations

• Anti-siphon and back-flow prevention devices must be installed and in working order.

• Use only tanks constructed with materials approved for handling metam. Tanks must be inspected, in good condition, and not past their life expectancy to ensure product does not spill or leak.

• Tanks must have proper pesticide labels on them.

• All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.

• Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.

- Use only positive displacement pumps. Do NOT use impellors made of brass, aluminum, or galvanized material.

• For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
• The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
• The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
• The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
• The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
• The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
• Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Drench Applications

Wind Speed

• Wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
• 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.
• Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

• Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant application. The soil must be tilled, at a minimum to the depth of the treatment zone.

• Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisture in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application.

•If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.

• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Use only tanks constructed with materials approved for handling metam. Tanks must be inspected, in good condition, and not past their life expectancy to ensure product does not spill or leak.
- Tanks must have proper pesticide labels on them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- Each nozzle must be equipped with a flow monitor, e.g., mechanical electronic, or Red-ball type monitor.
- To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
- Nozzles and metering devices are of correct size and are sealed and unobstructed.
- The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Drip Applications

Wind Speed

- 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.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
- 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.

• Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

• Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant application. The soil must be tilled, at a minimum to the depth of the treatment zone.

• Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisture in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application, subject to the exception below.

• EXCEPTION: In areas where soil moisture must exceed field capacity to form a bed *(e.g.*, certain regions in Florida), soil capacity may exceed the 80% allocated above.

•If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.

- If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Tarps

- When tarps are used for emission control in drip irrigation the tarps must be installed immediately after application.
- When tarps are used, a written tarp plan must be developed and included in the FMP that that includes:
  - Schedule and procedures for checking tarpaulins for damage, tears, and other problems,
  - Plans for determining when and how repairs to tarp will be made, and by whom,
  - Minimum time following injection that tarp will be repaired,
  - Minimum size of damage that will be repaired,
  - Other factors used to determine when tarp repair will be conducted,
  - Schedule, equipment and methods used to cut tarp,
  - Aeration plans and procedures following cutting and /or slitting prior to tarp removal or planting, and
  - Schedule, equipment, and procedures for tarp removal.

Flushing Drip Irrigation Lines

- After application of the fumigant, continue to irrigate the area with water to flush the injection and irrigation system with untreated water. Do not allow fumigant to remain in the irrigation system after the application is complete. The total volume of water must be adequate to completely remove the fumigant from the irrigation system, but should be less than the amount that could over-saturate the beds. If common lines are used for both the fumigant application and the water treatment/seal (if applied), these lines must be adequately flushed before starting the water treatment/seal and/or normal irrigation practices.

Application and Equipment Considerations

- Anti-siphon and back-flow prevention devices must be installed and in working order.
- Use only tanks constructed with materials approved for handling metam. Tanks must be inspected, in good condition, and not past their life expectancy to ensure product does not spill or leak.
- Tanks must have proper pesticide labels on them.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.

• For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
• The drip irrigation system (main lines, headers, drip tape) must be thoroughly checked for leaks before the start of the application. An adequate run-time and pressure are needed to detect leaks. Look for puddling along major pipes (holes on pipes or leaky joints), at the top and ends of rows (leaky connections, open drip tape), in the furrows and on the bed surface (damaged drip tape, malfunctioning emitters).
• To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.
• The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
• The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid toward the injection pump.
• The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
• The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
• The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
• Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Flood Basin, Furrow and Border Applications

Wind Speed

• 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.

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 exist or are predicted (see *Identifying Unfavorable Weather Conditions* section) and whether fumigation should proceed.
• 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.
• Detailed local forecasts for weather conditions, wind speed, and air stagnation advisories may be obtained online 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, which results in trapping fumigant vapors near the ground. The resulting air mass can move off-site in unpredictable directions. These conditions typically 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.

Soil Conditions

• Soil must be in good tilth and free of large clods. Large clods can prevent effective soil sealing and reduce effectiveness of the application. If subsurface soil compaction layers (hardpans) are present within the intended fumigation treatment zone, a deep tillage to fracture these layers must occur prior to or as part of the soil fumigant application. The soil must be tilled, at a minimum to the depth of the treatment zone.

• Plant residue that is present must not interfere with the application or the soil seal. Non-decomposed plant material may harbor pests that will not be controlled by fumigation. Crop residue that is present must lie flat to permit the soil to be sealed effectively and limit the natural "chimneys" that may occur in the soil when plant residue is present. These "chimneys" allow the soil fumigants to move through the soil quickly and escape into the atmosphere. This may create potentially harmful conditions for workers and bystanders and limits the efficacy of the fumigant. Plant residue on the field serves to prevent soil erosion from both wind and water.

Tarps

• When tarps are used for emission control, tarps must be installed immediately after application.

• When tarps are used, a written tarp plan must be developed and included in the FMP that includes:

- o Schedule and procedures for checking tarpaulins for damage, tears, and other problems,
- o Plans for determining when and how repairs to tarp will be made, and by whom,
- o Minimum time following injection that tarp will be repaired,
- o Minimum size of damage that will be repaired,
- o Other factors used to determine when tarp repair will be conducted,
- o Schedule, equipment and methods used to cut tarp,
- o Aeration plans and procedures following cutting and /or slitting prior to tarp removal or planting, and
- o Schedule, equipment, and procedures for tarp removal.

Soil Temperature

- At the beginning of the application, the maximum soil temperature is 90 degrees F, measured at 3 inches in depth.
- If air temperatures have been above 100 degrees F in any of the three days prior to application, then soil temperature must be measured and recorded in the FMP.

Soil Moisture

• The soil moisture in the top six inches of soil must be at 60% to 80% of soil capacity immediately prior to the application, subject to the exception below.

• EXCEPTION: In areas where soil moisture must exceed field capacity to form a bed *(e.g.*, certain regions in Florida), soil capacity may exceed the 80% allocated above.

•If appropriate measuring equipment is not used to determine whether the soil moisture in the top six inches of soil is at 60% to 80% of soil capacity immediately prior the application, the USDA *Feel Method* test may be used to help estimate whether the 60% to 80% soil capacity requirement is met:

coarse textured soils (fine sand and loamy fine sand) there must be enough moisture (50 - 75% available soil water moisture) to form a weak ball with loose and clustered sand grains on fingers, darkened color, moderate water staining on fingers, will not ribbon.

moderately coarse textured soils (sandy loam and fine sandy loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball with defined finger marks, very light soil/water staining on fingers, darkened color will not stick.

medium textured soils (sandy clay loam, loam, and silt loam) there must be enough moisture (50 - 75% available soil water moisture) to form a ball, very light staining on fingers, darkened color, pliable, and forms a weak ribbon between the thumb and forefinger.

fine textured soils (clay, clay loam, and silty clay loam) there must be enough moisture (50 - 75% available soil water moisture) to form a smooth ball with defined finger marks, light soil/water staining on fingers, ribbons between thumb and forefinger.

For **fields with more than one soil texture**, soil moisture content in the lightest textured (most sandy) areas must comply with this soil moisture requirement. The field may be divided into areas of similar soil texture and the soil moisture of each area should be adjusted as needed. Coarser textured soils can be fumigated under conditions of higher soil moisture than finer textured soils; however, if the soil moisture is too high, fumigant movement will be retarded and effectiveness of the treatment will be reduced. Previous and/or local experience with the soil to be treated or the crop to be planted can often serve as a guide to conditions that will be acceptable. If there is uncertainty in determining the soil moisture content of the area to be treated, a local extension service or soil conservation service specialist or pest control advisor (agriculture consultant) should be consulted for assistance.

• If there is insufficient moisture throughout the top six inches of soil immediately prior to the application, the soil moisture must be adjusted. If there is adequate soil moisture below six inches, soil moisture can be brought to the surface by tillage before or during injection. To conserve existing soil moisture, pretreatment or treatment tillage should be done as close to the time of application as possible.

Application and Equipment Considerations

• Systems using a gravity flow pesticide dispersing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.

• Meter at a steady rate into 3 to 18 inches of water per treated acre during irrigation.

IMPORTANT: Prior to starting the application, always inspect ditches and border areas to ensure containment of the irrigation waters. Apply only into field head ditch. DO NOT APPLY INTO ANY LATERAL DITCHES.

• Back-flow prevention devices must be installed and in working order.

• Use only tanks constructed with materials approved for handling metam. Tanks must be inspected, in good condition, and not past their life expectancy to ensure product does not spill or leak.

• Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.

• Tanks must have proper pesticide labels on them.

• All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.

• Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.

• For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.

• To inject fumigant, use a metering system, effectively designed and constructed of materials that are compatible with the fumigant and capable of being fitted with system interlocking controls.

• Flow rates must be calibrated and checked for each application.

• All previous materials applied with the system must be cleaned thoroughly prior to fumigant application.

• System must be flushed after application to totally remove all fumigant.

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., the field or portion of a field treated with a fumigant in any 24-hour period). In addition, agricultural operations fumigating multiple application blocks as part of a larger fumigation may format their 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, separate 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) reflect 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)
- 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, odor complaints, or other emergencies).
- Fumigant Treated Area posting procedures (name, address, and phone number of person(s) who will post Fumigant Treated Area signs, location of posting 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., treated area location, timing of tarp cutting and removal, PPE).

- o Name and phone number of persons contacted
- o Date contacted

• Authorized on-site personnel
- o Name, address, and phone number of handlers
- o Name, address, and phone number for employers of handlers
- o Tasks that each handler is authorized and trained to perform
- o For handlers designated to wear air purifying respirators (an air-purifying respirators 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
- o If sensory irritation is experienced, indicate whether operations will be ceased or operations will continue with an air-purifying respirator
- o f 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:
  - o Representative handler tasks to be monitored
  - o Monitoring equipment to be used and timing of monitoring

• Good Agricultural Practices (GAPs)
- o Description of applicable mandatory GAPs (registrants may also include optional GAPs)
- o 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 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:
- o The certified applicator supervising the application has verified that those elements are current and applicable to the application block before it is fumigated and has documented the verification in the site-specific FMP; and
- o 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.

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
        - 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)."

Maximum application rate is 320 lbs ai/A (75 gallons per treated acre).

Only for use on the following:

Alfalfa; Almond (*Prunus dulcis*); Amaranth (leafy amaranth, Chinese spinach, tampala) (*Amaranthus spp.*); Amur River Grape; Andean Blackberry; Angelica; Anise; Apple (*Malus domestica*); Apricot (*Prunus armeniaca*); Aronia Berry; Artic Blackberry; Arugula (roquette) (*Eruca sativa*); Asparagus (nursery production only); Artichokes; Balm (lemon balm); Barley; Basil; Bayberry; Bearberry; Beech Nut (*Fagus spp.*); Beet, Garden; Beet, Sugar; Bilberry; Bingleberry; Blackberry (*Rubus eubatus*); Black Satin Berry; Blueberry, highbush and lowbush (*Vaccinium spp.*); Borage; Boysenberry; Brazil Nut (*Bertholletia excelsa*); Broccoli; Broccoli, Chinese (Gai Lon); Broccoli, raab (rapini); Brombeere; Brussels Sprouts; Buffaloberry; Burdock, Edible; Burnet; Butternut (*Juglans cinerea*); Cabbage; Cabbage, Chinese (Bok Choy); Cabbage, Chinese mustard (Gai Choy); Cabbage, Napa; Calamondin (*Citrus mitis* X *Citrofortunella mitis*); California Blackberry; Camomile; Cardoon (*Cynara cardunculus*); Carrot; Cashew (*Anacardium occidentale*); Catnip; Cauliflower; Cavalo Broccolo; Celeriac (celery root); Celery (*Apium graveolens* var. dulce); Celery, Chinese (*Apium graveolens* var. secalinum); Celtuce (*Lactuca sativa* var. angustana); Chayote (fruit) (*Sechium edule*); Che; Cherokee Blackberry; Cherry, sweet (*Prunus avium*); Cherry, tart (*Prunus cerasus*); Chervil (dried) (*Anthriscus cerefolium*); Chervil, turnip-rooted

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(*Chaerophyllum bulbosum*); Chesterberry; Chestnut (*Castanea spp.*); Cheyenne Blackberry; Chicory; Chilean Guava; Chinese Waxgourd (Chinese preserving melon) (*Benincasa hispida*); Chinquapin (*Castanea pumila*); Chive, fresh leaves; Chive, Chinese, fresh leaves; Chokecherry; Chrysanthemum, edible-leaved (*Chrysanthemum coronarium* var. coronarium); Chrysanthemum, garland (*Chrysanthemum coronarium* var. spatiosum); Cilantro; Citron Melon (*Citrullus lanatus* var. citroides); Citrus (orchard replant only); Citrus Citron (*Citrus medica*); Citrus Hybrids (*Citrus spp.*) (includes: Chironja, Tangelo, Tangor); Clary; Cloudberry; Clover; Collard; Common Blackberry; Corn; Corn Salad (*Valerianella locusta*); Coriander (cilantro or Chinese parsley) (leaf); Coryberry; Costmary; Cotton; Cover crops (i.e., crops planted between periods of regular crop production to prevent soil erosion, control weeds, and improve soil quality that are incorporated into the soil before the next crop is planted and may not be harvested for food or feed); Crops grown solely for seed; Crabapple (*Malus spp.*); Cranberry; Cress, garden (*Lepidium sativum*); Cress, upland (yellow rocket, winter cress) (*Barbarea vulgaris*); Cucumber (*Cucumis sativus*); Cucurbits; Culantro (leaf); Currant, Black; Currant, Red; Curry (leaf); Dandelion (*Taraxacum officinale*); Darrowberry; Dewberry; Dill; Dill (dillweed); Dirksen Thornless Berry; Dock (sorrel) (*Rumex spp.*); Eggplant; Elderberry (*Sambucus spp.*); Elegans Hosta; Endive (escarole) (*Cichorium endivia*); European Barberry; Evergreen Blackberry; Fava Beans; Fennel, Filbert (hazelnut) (*Corylus spp.*); Florence (finochio) (Foeniculum vulgare Azoricum Group); Fritillaria, leaves; Forest Seedlings; Garden Beet; Garlic; Gherkin (*Cucumis anguria*); Ginger; Ginseng; Gooseberry (*Ribes spp.*); Gourd, edible (*Lagenaria spp.*) (includes: hyotan, cucuzza (*Luffa acutangula*, *L. cylindrical*, includes hechima, Chinese okra); Grape (vineyard replant only); Grapefruit (*Citrus paradisi*); Green Beans; Herbs (all); Hickory Nut (*Carya spp.*); Highbush Cranberry; Himalayaberry; Honeysuckle, edible; Horehound; Horseradish; Huckleberry (*Gaylussacia spp.*); Hullberry; Hyssop; Jostaberry; Juneberry; Kale; Kiwifruit, fuzzy; Kiwifruit, hardy; Kohlrabi; Kumquat (*Fortunella spp.*); Kurrat; Lavacaberry; Lavender; Leafy Greens; Leek; Leek, ladies; Leek, wild; Lemon (*Citrus jambhiri*, *Citrus limon*); Lemongrass; Lettuce, head and leaf (*Lactuca sativa*); Lima Beans; Lime (*Citrus aurantiifolia*); Lingonberry; Loganberry (*Rubus loganobaccus*); Loquat (*Eriobotrya japonica*); Lowberry; Lovage (leaf); Lucretiaberry; Macadamia Nut (bush nut) (*Macadamia spp.*); Mammoth Blackberry; Mandarin (tangerine) (*Citrus reticulata*); Marigold; Marionberry; Marjoram (includes sweet or annual marjoram, wild marjoram, or oregano, and pot marjoram); Mayhaw (*Crataegus aestivalis*, *C. opaca*, and *C. rufula*); Maypop; Mint; Mizuna; *Momordica spp.* (includes balsam apple, balsam pear, bitter melon, Chinese cucumber); Mora; Mountain Pepper Berries; Mulberry; Muntries; Mures Denronce; Muskmelon (hybrids and/or cultivars of *Cucumis melo* (includes true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon)); Mustard; Mustard Greens; Mustard Spinach; Nasturtium; Native Currant; Nectarberry; Nectarine (*Prunus persica*); Northern Dewberry; Nursery Stock (fruit seedlings and rose bushes only); All Nursery Tree Crops (like Maple, Ash, Dogwood); Oats; Olallieberry; Onion; Onion, Beltsville bunching; Onion, fresh; Onion, green; Onion, macrostem; Onion, tree tops; Onion, Welsh tops; Orange, sour (*Citrus aurantium*); Orange, sweet (*Citrus sinensis*); Orach (*Atriplex hortensis*); Oregon Evergreen Berry; Oriental Radish; Ornamentals (floriculture only); Ornamental Crops; Parsley (*Petroselinum crispum*), Parsley, turnip-rooted (*Petroselinum crispum* var. *tuberosum*); Parsnip; Partridgeberry; Peach (*Prunus persica*); Pear (*Pyrus communis*), Pear, oriental (*Pyrus pyrifolia*); Peas (English and Garden); Pecan (*Carya illinoensis*); Pennyroyal; Phalsa; Phenomenalberry; Pincherry; Pistachio; Plum (*Prunus domestica*, *Prunus spp.*); Plum, Chickasaw (*Prunus angustifolia*); Plum, Damson (*Prunus domestica* spp. insititia); Plum, Japanese (*Prunus salicina*); Plumcot (*Prunus. armeniaca* X *P. domestica*); Pome Fruit (orchard replant only) Peanut; Pepper; Potato; Prune (fresh) (*Prunus domestica*, *Prunus spp.*); Pummelo (*Citrus grandis*, *Citrus maxima*); Pumpkin (*Cucurbita spp.*); Purslane, garden (*Portulaca oleracea*); Purslane, winter (*Montia perfoliata*); Quince (*Cydonia oblonga*); Radicchio (red chicory) (*Cichorium intybus*); Radish; Radish, oriental (daikon); Rangeberry; Rape Greens; Rappini; Raspberry, black, Raspberry, red; Raspberry, wild; Ravenberry; Rhubarb (*Rheum rhabarbarum*); Riberry; Rosemary; Rossberry; Rue; Rutabaga; Rye; Sage; Salal; Salsify (oyster plant); Salsify, black; Salsify, Spanish; Satsuma Mandarin (*Citrus unshiu*); Savory, summer and winter; Schisandra Berry; Sea Buckthorn; Seed Beans; Serviceberry; Shallot, fresh leaves; Shawnee Blackberry; Skirret; Soybean; Spinach (*Spinacia oleracea*); Spinach, New Zealand (*Tetragonia tetragonioides*, *T. expansa*); Spinach, vine (Malabar spinach, Indian spinach) (*Basella alba*); Squash, summer (*Cucurbita pepo* var. melopepo) (includes: crookneck squash, scallop squash, straightneck squash, vegetable marrow, and zucchini); Squash, winter (*Cucurbita maxima*; *C. moschata*) (includes: butternut squash, calabaza, hubbard squash) and (*C. mixta*; *C. pepo*) (includes acorn squash, spaghetti

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squash); Stone Fruit (orchard replant only) Strawberries; Sudan; Sweet bay (bay leaf); Sweet Potato; Swiss Chard; Tansy; Tarragon; Tayberry; Thyme; Tobacco; Tomatoes; Tree Nuts (orchard replant only) Turnip; Turf (including golf courses); Walnut, black and English (Persian) (*Juglans spp.*); Watermelon (includes hybrids and/or varieties of *Citrullus lanatus*); Wheat; Wintergreen; Woodruff; Wormwood; Yams; Youngberry and varieties and/or hybrids of these; and Zarzamora.

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Use in greenhouses is prohibited. Application with handheld equipment is prohibited. Application with cement grinder and shredder equipment is prohibited. Open-pour applications are prohibited.

Use only according to label. Do not apply this product through any irrigation system unless the labeling on chemigation is followed.

READ ALL LABEL DIRECTIONS BEFORE USING

PRODUCT INFORMATION

SECTAGON 42® is a water-soluble liquid. When applied to properly prepared soil, the liquid is converted into a gaseous fumigant. After a sufficient waiting period, the gas dissipates, leaving the soil ready for planting. SECTAGON 42® is recommended for the suppression of weeds, plant parasitic nematodes, and soilborne fungi that cause reductions in the yield and quality of ornamental, food and fiber crops.

SECTAGON 42® will suppress only those pests in the fumigation zone at the time of treatment. Recontamination may occur subsequent to the fumigant's dissipation from the soil.

Weeds and germinating weed seeds that are suppressed include Annual bluegrass, Bermuda grass, Chickweed, Dandelion, Ragweed, Henbit, Lambsquarter, Amaranthus sp. (Pigweed, Careless weed), Watergrass, Johnsongrass, Nutgrass, Wild morningglory, Purslane, Barnyardgrass, Crabgrass, Groundsel, Prickly lettuce, Pineappleweed, Nettleaf, Goosefoot, Nightshade, Shepherdspurse, Stinging nettle, Malva, London rocket, and Fiddleneck. The best weed suppression is obtained when SECTAGON 42® is applied to weeds that are actively growing.

The soil-borne plant pathogenic fungi suppressed include species of Verticillium, Rhizoctonia, Pythium, Phytophthora, Sclerotinia.

The plant parasitic nematodes which SECTAGON 42® suppresses include Root knot, Lesion, Dagger, Lance, Needle, Pin, Reniform, Stunt, Stubby root, Sting and Spiral.

Note: SECTAGON 42® will only suppress nematodes that are in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that SECTAGON 42® achieves at the time of application. In Oregon and Washington, SECTAGON 42® will only suppress Miloidogyne Chitwoodi. Other pests suppressed include symphilids or garden centipedes.

TREATMENT GUIDELINES

For optimum results from soil fumigation with SECTAGON 42® certain procedures should be observed at designated times in the treatment program. Described in this section are important guidelines for each of the four stages of the treatment process:

Planning a SECTAGON 42® Application

Preparing a Field for Application

Applying SECTAGON 42®

Preparing for Planting after Application of SECTAGON 42®

Your sales representative will help you select the best treatment program for your particular needs.

PLANNING A SECTAGON 42® APPLICATION

Time of Application

Apply SECTAGON 42® after harvest and 14 to 21 days before a new crop is planted. In some areas of North America, fall applications are preferred because the fumes dissipate over the winter, allowing

planting to begin as soon as favorable springtime conditions arrive.

Application Rate

Apply 1 to 75 gallons of SECTAGON 42® per treated acre depending on crop, target pest, and soil properties. Soil properties to consider when determining the application rate include the depth of soil to be treated, soil texture and percent organic matter.

Application in Tank Mix with Liquid Fertilizer

SECTAGON 42® may be injected in a mixture with liquid fertilizers. Since the composition of liquid fertilizers vary considerably, the physical compatibility of each fertilizer/SECTAGON 42® tank mix should be checked by using the following procedure:

Mix a small quantity of SECTAGON 42® and liquid fertilizer in a glass container. SECTAGON 42® and fertilizer should be mixed in the same ratio as they will be applied to the field (i.e., if 40 gallons of SECTAGON 42® and 40 gallons of liquid fertilizer are to be applied per acre, then SECTAGON 42® and fertilizer should be mixed in the jar in a 40:40 or 1:1 ratio). Agitate the liquids to attain a complete mixture.

If a uniform mix cannot be made, the mixture should not be used. If the mixture remains uniform for 30 minutes, the combination may be used. Should the mixture separate after 30 minutes, but readily remixes uniformly with agitation, the mixture can be used if adequate agitation is maintained in the tank.

DO NOT PLACE CAPS ON JAR, AS INCOMPATIBLE MIXES MAY EVOLVE HYDROGEN SULFIDE GAS.

USE PROMPTLY AFTER MIXING WITH WATER OR FERTILIZER. DO NOT ALLOW SOLUTION TO STAND.

Flush all equipment with water after each day's use. Disassemble valves and clean carefully.

Target Pest and Depth of Treatment

For suppression of weeds and fungi causing seed or seedling diseases, treatment of only the top 1 to 4 inches of soil may be required. For suppression of nematodes and fungi which occur throughout the rhizosphere, treatment to depths of greater than 4 inches may be required. For a given soil type, the required application rate will increase proportionately with the depth of treatment required.

For example, if 25 gallons of SECTAGON 42® per acre is required to treat 4 inches, then 50 gallons of SECTAGON 42® will be required to treat to a depth of 8 inches. Choose the appropriate application method to distribute SECTAGON 42® evenly throughout the soil to the required depth.

Organic Matter in the Soil

~~Plant material under the soil surface should be thoroughly decomposed before SECTAGON 42® is applied.~~ Because of the absorbing effect of humus, soils with high levels of organic matter under the surface require higher than usual doses of SECTAGON 42®. For example, muck soils require twice the amount of fumigant that would be used in mineral soils.

Soil Texture

Application rates will vary with the soil texture. For instance, clay soils require more SECTAGON 42® than light sandy soil.

~~PREPARING A FIELD FOR APPLICATION~~

~~Soil Cultivation~~

~~Cultivate the soil thoroughly before treatment, breaking up all large clods. If the soil crusts following pretreatment irrigation, lightly cultivate it again before treatment with SECTAGON 42®.~~

~~Soil Temperature During Treatment~~

~~At the time of fumigation, the soil temperature should be in the range of 40°F-90°F (4°-32°C) at a depth of 3 inches.~~

~~To prevent rapid evaporation of the product from the soil avoid treating soil during times of the day when soil temperatures exceed 90° F (32° C). Instead, make the application during the early morning hours when the soil temperature is coolest.~~

~~Measuring the Soil Moisture~~

~~Application should be made under "good seed bed moisture condition", that is, the soil moisture should be~~

~~about 50-80% of field capacity. As a simple field test, squeeze a handful of soil into a ball and then gently try to break it apart with your fingers. If it breaks easily, the soil moisture content is sufficient. If it will not break apart or if water can be squeezed out, it is too wet. When necessary, 1 to 2 weeks prior to treatment sprinkle or flood irrigate the soil to increase the moisture content. The soil must be moistened to at least the desired treatment depth.~~

Phytotoxicity

SECTAGON 42® is phytotoxic. Protect valuable, non-target plants by stopping soil applications of SECTAGON 42® at least 3 feet short of the drip line of trees, shrubs, and other desirable plants. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

APPLYING SECTAGON 42®

Use of Diluted SECTAGON 42®

Do not store the diluted product. Use SECTAGON 42® promptly after it has been mixed with water. In dilute solutions in water SECTAGON 42® decomposes over a period of days. Although SECTAGON 42® is stable in its concentrated form, it is unstable in acid dilutions.

~~**Odors During or After Application**~~

~~Strong odors during or after application are a signal that the fumigant is escaping and needs to be sealed in the soil. If increasingly strong odors are occurring, the application should be stopped immediately and not resumed until the source of the odor problem is identified and corrected. For sprinkler application or whenever possible with other application methods, a water seal should be applied immediately to the treated areas of the field.~~

~~**Sealing SECTAGON 42® in Soil**~~

~~To be most effective, SECTAGON 42® should be sealed in the soil. Sealing methods include applying irrigation water or plastic tarpaulins and packing soil with a roller or drag. Tarpaulins should be spread loosely over the treated area and secured to prevent removal by wind. They should remain in place for at least 48 hours. Seven days after treatment, the sealed area should be cultivated to a depth of 2 inches to aerate the soil. When tarpaulins are used to seal the soil, wait at least 21 days before planting.~~

CHEMIGATION–GENERAL PROCEDURES

When applying by chemigation methods the following precautions must be observed.

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move; flood (basin); furrow; border, or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Posting of areas to be chemigated is required when 1) any part of a treated area is within 300 feet of sensitive areas such as residential areas, labor camps, businesses, day care centers, hospitals, in-patient clinics, nursing homes or any public areas such as schools, parks, playgrounds, or other public facilities not including public roads, or 2) when the chemigated area is open to the public such as golf courses or retail greenhouses.

Posting must conform to the following requirements: Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive areas. When there are no usual points of entry, signs must be posted in the corners of the treated area and in any other location affording maximum visibility to sensitive areas. The printed side of the sign should face away from the

treated area toward the sensitive areas. The signs shall be printed in English. Signs must be posted prior to application and must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place indefinitely as long as they are composed of materials to prevent deterioration and maintain legibility for the duration of the posting period.

All words shall consist of letters of at least 2 1/2 inches tall, and all letters and the symbol shall be a color which sharply contrasts with their immediate background. At the top of the sign shall be the words KEEP OUT, followed by an octagonal stop sign symbol of at least 8 inches in diameter containing the word STOP. Below the symbol shall be the words PESTICIDES IN IRRIGATION WATER.

This sign is in addition to any sign posted to comply with the Worker Protection Standard.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

NOTE: Tessenderlo Kerley, Inc. does not encourage connection of chemigation systems to public water systems. The following information is provided for users who have evaluated all alternative application and water source options before choosing to make such a connection.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank measuring of at least twice the inside diameter of the fill pipe.

~~The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.~~

~~The pesticide injection pipeline must contain a functional, normally closed solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.~~

~~The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, controls on the pesticide injection pump are also needed when the water pressure decreases to the point where pesticide distribution is adversely affected.~~

~~System must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.~~

Do not apply when wind speed favors drift beyond the area intended for treatment.

~~**SPRINKLER SYSTEM CHEMIGATION**~~

~~The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back toward the injection pump.~~

~~The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid backflow.~~

~~The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.~~

~~The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.~~

~~The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.~~

~~Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm~~

~~pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.~~

~~Do not apply when wind speed favors drift beyond the area intended for treatment.~~

~~FLOOD (BASIN), FURROW OR BORDER IRRIGATION SYSTEM CHEMIGATION~~

~~Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.~~

~~Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:~~

~~The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.~~

~~The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.~~

~~The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.~~

~~The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.~~

~~The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.~~

~~Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.~~

~~Do not dilute in supply tanks. Agitation of supply tank recommended after freezing.~~

~~DRIP CHEMIGATION~~

~~The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.~~

~~The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.~~

~~The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.~~

~~The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.~~

~~The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.~~

~~Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.~~

GENERAL INSTRUCTIONS FOR SPRINKLER SYSTEMS

Application over cover crops: Sectagon 42 can be applied through center pivot or solid set sprinkler systems on cover crops that are living and less than approximately eight inches tall such as alfalfa, clover, green beans, and grasses such as rye, oats, wheat, and sudan. When applied over cover crops, no soil cultivation is required before the application. The terminated crop must not be used for any food or feed purpose after Sectagon 42 has been applied.

NOTICE: Do not operate irrigation systems without safety valves or other devices to prevent back siphoning of SECTAGON 42® into water sources. Irrigation water treated with SECTAGON 42® should be maintained on the treated area until the water is absorbed by the soil. The tank containing SECTAGON 42® must be connected to the discharge side of the irrigation pump or other pressurized equipment attached to the irrigation line. Do not apply in irrigation systems that result in overlapping application of SECTAGON 42®. Do not apply when weather conditions favor drift from target areas.

PREPARING FOR PLANTING AFTER APPLICATION OF SECTAGON 42®

Effect of Rain

If a SECTAGON 42® application is rained on less than 24 hours after treatment, lack of suppression at and near the soil surface may result.

Recontamination

Precautions must be taken to prevent recontamination of treated soil with weed seeds, plant pathogenic fungi and plant parasitic nematodes. Use clean seeds and/or plants. Before farm equipment is driven into the treated area, it should be rinsed free of the untreated soil from other fields.

Interval Between Treatment and Planting

Because SECTAGON 42® can be harmful to germinating and/or living plants, an appropriate interval must be observed between soil fumigation and planting. On well-drained soils which have a light to medium texture and which are not excessively wet or cold following application, planting can begin 14 to 21 days after treatment. If soils are heavy or especially high in organic matter, or if they remain wet and or cold (below 60° F or 15° C) following application, a minimum interval of 30 days should be observed.

Aeration before planting

Soils including soils high in clay or organic matter, should be allowed to aerate and dry thoroughly after treatment with SECTAGON 42® During cold and/or wet weather, frequent shallow cultivation can aid the escape of SECTAGON 42® from the soil.

Testing for Dissipation of SECTAGON 42®

After the waiting period has passed, if there are any questions about the complete escape of SECTAGON 42® from the soil, transplant a seedling into the treated soil. If the plant develops normally without any signs of chemical injury, crop planting can begin.

USES, APPLICATION METHODS & RATES
FIELD APPLICATION WHERE ENTIRE AREA IS BEING TREATED

POWER ROLL SEAL METHOD (NON-TARP)

Use a RO-TO-VATE & ROLL Applicator only. Contact your local agricultural extension service, distributor or the manufacturer for approved RO-TOVATE & ROLL Application specifications.

When to Treat: Apply SECTAGON 42® 2 to 6 weeks prior to planting, whenever soil type and conditions permit. For best results with annual crops, treat the soil each year. Do not use SECTAGON 42® to treat any type of soil when it is cold and/or wet.

~~**Soil Preparation:** SECTAGON 42® gives best results when conditions permit thorough diffusion of the fumigant through the soil and the soil surface can be power roll sealed to prevent excessive fumigant loss during the exposure period. The soil should be prepared to seed bed condition, free of dry clods, relatively low in undecomposed organic matter with a level soil surface. A smooth soil surface is required for uniform distribution of SECTAGON 42® during incorporation.~~

~~**Soil Moisture: Soil moisture should range between 30-50% of field capacity.**~~

~~**Soil Temperature:** Soil temperature should range between 40° to 90° F at the depth of incorporation. Cool soil temperature and high soil moisture will slow diffusion of fumigant and planting date/time may be delayed. Hot soil temperature and low soil moisture allows extremely rapid diffusion of fumigant and hinders a good soil seal.~~

Application: Use undiluted SECTAGON 42® to the desired depth below the final soil surface. (Contact your dealer or the manufacturer for the specifications for suitable application equipment).

IMPORTANT SOIL TREATMENT PRECAUTIONS

Crops to be hilled: For crops that require soil movement (hilling) prior to or after planting, incorporate SECTAGON 42® to a depth that will allow the tillage required to occur without penetrating below the depth of treatment.

Crops to be bedded: For crops to be bedded, care must be taken that exposed sides of raised beds are not cracked or open compared to the power rolled surface. If necessary, add power rollers of the required height or other sealing equipment to the ends of the bedding equipment to seal the sides.

Note: The use of SECTAGON 42® for the suppression of weeds, weed seeds and shallow inhabiting soil fungi requires that NO SOIL CULTIVATION OCCUR FOLLOWING TREATMENT until time of planting.

This method of treating soil with SECTAGON 42® will not be effective for the suppression of nematodes outside the treated zone. This method of SECTAGON 42® application can be used in combination with other soil fumigants to suppress the nematodes persisting in the surface 1 to 6 inches of soil normally not suppressed with injected soil fumigants.

Zone of treatment will be limited by diameter of applicator. If pest is deeper than applicator can treat to, use a different method. For further information contact your local agricultural extension service or the manufacturer.

SOIL INJECTION

Use injectors (shanks, blades, fertilizer wheels, plows, etc.) to apply SECTAGON 42® at the rate of 15 to 75 gallons per acre into well prepared soil. Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil.

Example: apply through injectors placed 4 inches below surface and 5 inches apart.

SPRINKLER SYSTEM

Use only those sprinkler systems which give large water droplets to prevent excess loss. Use 37.5 to 75 gallons SECTAGON 42® per acre for suppression of nematodes and fungi at a depth of 24 inches. For suppression of weeds and fungi at a depth of 8 inches or less, use 15 to 75 gallons per acre. Inject the SECTAGON 42® in enough water to reach to desired treatment depth. The product should be continuously metered into the irrigation system throughout the entire application period. Flush the system with only enough water to clear lines. If the soil surface dried quickly, reseal it with 15 minutes of water once a day for the next day or two.

~~When using a sprinkler application method, apply SECTAGON 42® only when the air temperature is below 90° F (32° C). This precaution is recommended to guard against evaporation of the product. Either low humidity or high winds can also cause the evaporation of SECTAGON 42® before it can be drenched into the soil. To prevent wind drift of the fumigant, apply only when wind conditions are suitable.~~

To prevent runoff of treatment solution during sprinkler application, do not exceed the infiltration rate of the solution into the soil. Should runoff occur, isolate it from growing crops and water sources. Once collected, reapply it to the treated area. See use precautions in "CHEMIGATION" section.

CHECK OR FLOOD IRRIGATION

Meter SECTAGON 42® at a steady rate into water during irrigation. Use 40 to 75 gallons of SECTAGON 42® per acre, depending upon the kind of pest and depth desired, in 3 to 18 inches of water per acre. See use precautions in "CHEMIGATION" section.

DISC APPLIED METHOD

Spray SECTAGON 42® immediately in front of disc. Use 15 to 75 gallons per acre. Follow immediately with a roller to smooth and compact the soil surface.

DRIP IRRIGATION

SECTAGON 42® may be injected into drip irrigation systems prior to planting. The area must be calculated in accordance with the size of the band treated. Apply 40 gallons per broadcast acre in one

acre inch of water (27,000 gallons). The resulting concentration is 700 ppm on a weight basis. (Example: if the emitters irrigate 10% of each acre then use 5 gallons SECTAGON 42® in 2,700 gallons water). Inject continuously. Do not slug treat. See use precautions in "CHEMIGATION" section.

APPLICATION TO BED OR ROWS

POWER ROLL SEAL METHOD (NON-TARP)

Use a modified RO-TO-VATE & ROLL Applicator only. Contact your local agricultural extension service, distributor or the manufacturer for approved RO-TO-VATE & ROLL Applicator specifications.

When to treat: Apply SECTAGON 42® 2 to 6 weeks prior to planting whenever soil type and conditions permit. For best results with annual crops, treat the soil each year. Do not use SECTAGON 42® to treat any type of soil when it is cold and/or wet.

~~**Soil Preparation:** SECTAGON 42® gives best results when conditions permit thorough diffusion of the fumigant through the soil and the soil surface can be power roll sealed to prevent excessive fumigant loss during the exposure period. The soil should be prepared to seed bed conditions, free of dry clods, relatively low in undecomposed organic matter with a level soil surface. A smooth soil surface is required for uniform distribution of SECTAGON 42® during incorporation.~~

~~**Soil Moisture:** Soil moisture should range between 30 to 50% of field capacity.~~

~~**Soil Temperature:** Soil temperature should range between 40° to 90°F at the depth of incorporation. Cool soil temperature and high soil moisture will slow diffusion of fumigant and planting date/time may be delayed. Hot soil temperature and low soil moisture allows extremely rapid diffusion of fumigant and hinders a good soil seal.~~

Application: Use undiluted SECTAGON 42.® Apply with suitable application equipment that will ensure incorporation of SECTAGON 42® to the desired depth below the final soil surface. (Contact your dealer or the manufacturer for the specifications for suitable application equipment).

IMPORTANT SOIL TREATMENT PRECAUTIONS

Crops to be hilled: For crops that require soil movement (hilling) prior to or after planting, incorporate SECTAGON 42® to a depth that will allow the tillage required to occur without penetrating below the depth of treatment.

Crops to be bedded: For crops to be bedded, care must be taken that exposed sides of raised beds are not cracked or open compared to the power rolled surface. If necessary, add power rollers of the required height or other sealing equipment to the ends of the bedding equipment to seal the sides.

Note: The use of SECTAGON 42® for the suppression of weeds, weed seeds and shallow inhabiting soil fungi requires that NO SOIL CULTIVATION OCCUR FOLLOWING TREATMENT until time of planting.

This method of treating soil with SECTAGON 42® will not be effective for the suppression of nematodes outside the treated zone. This method of SECTAGON 42® application can be used in combination with other soil fumigants to suppress the nematodes persisting in the surface 1 to 6 inches of soil normally not suppressed with injected soil fumigants.

Zone of treatment will be limited by diameter of applicator. If pest is deeper than applicator can treat to, use a different method. For further information contact your local agricultural extension service or the manufacturer.

SOIL INJECTION

SECTAGON 42® at the rate of 50 to 75 gallons per treated acre (1 to 1.5 pints per 100 sq. ft.), may be injected into preformed plant beds following the directions given above under soil injection. If a wider treated band is desired, space 2 or more injectors (shanks, blades, fertilizer wheels, etc.) at desired intervals to cover the desired treating width. Seal immediately.

If SECTAGON 42® is injected into established plant beds through plastic tarps to terminate growth of a previous crop, and to fumigate the bed in preparation for planting a subsequent crop, the terminated crop should not be used for any food or feed purposes after SECTAGON 42® has been applied.

SOIL COVERING METHOD
(BED-OVER METHOD)

SECTAGON 42® may be sprayed or dripped onto the soil immediately ahead of bed-shaping equipment. Follow immediately with a bedshaper, roller press wheel, or similar device, or cover with an adequate amount of soil to seal the fumigant into the soil. The recommended rate of SECTAGON 42® is 40 to 75 gallons per acre of treated soil, approximately equivalent to .5 to 1.5 pints per 100 linear ft. of 12-inch wide row.

DRIP IRRIGATION

During pre-irrigation, check drip tape for uniform distribution and repair if necessary. Apply 15 to 75 gallons SECTAGON 42® per treated acre (0.25 to 1.5 pints per 100 sq. ft. of treated soil) using enough water to thoroughly wet entire desired treatment zone. During the entire irrigation period, inject SECTAGON 42® continuously into drip line as close as possible to treatment area. Two or more lines per bed may be needed to ensure full coverage.

~~Application must be continuously supervised. This is very important:~~ weed suppression will not be satisfactory if too much water is applied. An adequate concentration of SECTAGON 42® must be present at the time of weed seed germination in order to be effective. ~~Further directions for use are as follows: Ground must be in seed-bed condition, no clods larger than 1/2" in diameter. Beds must be listed, shaped and ready for planting. Soil moisture must be at 50% of field capacity in the top 2 to 3 inches at time of SECTAGON 42® application.~~ See use precautions in "CHEMIGATION" section.

DRENCH METHOD

SECTAGON 42® may be applied to finished beds in enough water to soak at least 2 inches deep for suppression of shallow seeded weeds. To avoid contamination by untreated soil, do not disturb the treated area. Apply 15 to 75 gallons of SECTAGON 42® per treated acre.

ADDITIONAL RECOMMENDATIONS

TOBACCO PLANT BEDS

Fall applications are recommended wherever possible. Read and follow DIRECTIONS FOR USE carefully. Treatment in the South should generally be made before November 30.

A. TARP METHOD: Prepare the bed 5 to 7 days before application to insure best conditions for weed seed germination and fumigant action of SECTAGON 42.® ~~The bed should be free of clods, level and in good tilth.~~ Apply 1 to 1¼ gallons of SECTAGON 42® in a minimum of 40 gallons of water per 100 sq. yds. Apply uniformly over the entire bed. Cover the bed immediately with a plastic cover. ~~Keep covered no less than one day, but no more than two days.~~ The cover need not be tented, but should be secured to prevent wind from uncovering the treated area. Seven days after date of SECTAGON 42® application, loosen the treated soil to a depth of 2 inches. Do not seed tobacco earlier than 21 days after SECTAGON 42® application.

B. DRENCH METHOD: Apply 2 gallons SECTAGON 42® in 150 to 200 gallons of water per 100 sq. yd. Application may be made with sprinklers, sprayers with nozzles or any suitable equipment. Follow directions given above for seed bed treatment.

SYMPHYLID SUPPRESSION

Soil should be in good seed bed condition to a depth of 8 to 10 inches. Maintain adequate moisture during spring season. Treat during July-August when symphylids are in the upper soil surface. Apply 15 gallons SECTAGON 42® per acre using blade or chisel injector. Inject below level of symphylid concentration, usually 6 to 8 inches. Pack soil immediately after application.

NOTE: SECTAGON 42® will only suppress nematodes which are in the fumigated zone at the time of treatment.

POTATOES

For suppression of potato pests such as Root knot nematodes, Weed seeds, Verticullum dahlias (Early maturity disease).

Apply 30 to 75 gallons SECTAGON 42® per acre using injectors (shanks, blades, fertilizer wheels, plows, etc.) Follow immediately with a bedshaper, roller press wheel or similar device or cover with an adequate amount of soil to seal the fumigant into the soil.

Sprinkler system preplant application - Use 37.5 to 75 gallons of SECTAGON 42® per acre. Inject into a sprinkler system that can deliver an even water distribution for the area being treated. Inject all of the SECTAGON 42® needed for the area covered and apply in enough water to reach the desired treatment depth. Soil temperature should be in the range of 40° F to 90° F in the treatment zone. Soil moisture immediately prior to treatment must be 60 to 80% of field capacity down to 24" level. SECTAGON 42® may be applied where crop stubble or vegetation exists without prior fillage, provided there is adequate soil penetration of SECTAGON 42.® Soil condition must facilitate even moisture penetration without runoff. Do not apply when plants are present. See use precautions in "CHEMIGATION" section.

NOTE: SECTAGON 42® will suppress Root knot nematodes in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that SECTAGON 42® achieves at the time of application.

If high numbers or deep nematodes are identified, anticipate nematodes to build up throughout the growing season. Some damage will occur unless additional action is taken.

SECTAGON 42® has no soil residual and reinfestation of a field can occur from numerous sources such as deep nematode populations, seed pieces, irrigation water, equipment contamination and blowing wind.

EARLY MATURITY DISEASES OF POTATOES IN OREGON

Apply 30 gallons SECTAGON 42® per acre using injectors (shanks, blades, fertilizer wheels, plows, etc.) Follow immediately with a bedshaper, roller press wheel or similar device or cover with an adequate amount of soil to seal the fumigant into the soil.

NOTE: SECTAGON 42® will suppress Root knot nematodes in the fumigated zone at the time of treatment. The fumigated zone is defined as the depth of penetration that SECTAGON 42® achieves at the time of application.

MINT

Verticilium wilt control.

When infestation is limited to small spots in a field, spread can be reduced by treating the soil with 75 gallons SECTAGON 42® per treated acre (1½ pints per 100 sq. ft.) using injector blade or thin shank injector rig with injectors spaced at intervals to cover the desired treating width.

WHEAT AND BARLEY

For suppression of certain root diseases caused by Early season soil fungi – before applying SECTAGON 42® cultivate the area to be treated to break up clods. Apply 2 to 7.5 gallons per treated acre 14 to 21 days before planting. SECTAGON 42® may be diluted with water or non-acidic liquid fertilizer immediately before applying. Inject SECTAGON 42® to a depth of 5 to 8 inches into moist soil. Space injector shanks at intervals to cover the desired treating width.

Do not mix SECTAGON 42® with acidic fertilizer or other acidic solutions. For best results, moisture in the treated zone should be 60% of field capacity or more.

Use only in areas which receive 15 or more inches of rainfall per year.

PEANUTS

Cylindrocladlium Black Rot (CBR) Suppression:

Apply SECTAGON 42® at the following rates:

CBR-resistant cultivar (NC8C): 7.5 gallons per treated acre or 4 pints per 1,000 feet of treated row CBR-susceptible peanut cultivars (Florigant, GK-3, NC-5 Keel 29): 15 gallons per treated acre or 8 pints per 1,000 feet of treated row.

CBR-highly susceptible cultivars (VA 81B, NC7): use of SECTAGON 42® is not recommended.

Soil Preparation: Before applying SECTAGON 42,® residue from the previous crop should be decomposed (enhanced by fall discing) and plowed under in the spring with mold-board plow. Soil incorporated preplant herbicides must be applied before application of SECTAGON 42®.

Application: Apply SECTAGON 42® with a gravity flow regulator through chisel-type or counter-type applicators. Center each applicator, one per row, in front of a bedshaper to mark the location of chemical deposition. SECTAGON 42® should be deposited 6 to 8 inches below the soil surface of beds. Bed and applicator spacing should coincide with row spacing at planting. Soil temperatures must be in the range of 60° F to 90°F at injection-depth before application.

Tillage and Planting after Application: Do not mix treated soil with untreated soil by tillage or other cultural practices. Plant peanuts in the center of treated beds no earlier than 14 days following application of SECTAGON 42® An at-planting nematicide treatment will be necessary in fields with heavy infestation of Root knot, Ring and/or String nematode.

FOR SUPPRESSION OF SPECIFIC ORCHARD DISEASES (SUCH AS SPECIFIC APPLE REPLANT DISEASE)

Use 62 to 75 gallons of Sectagon 42® per treated acre. It is best to have the replant site prepared to a planting consistency which includes irrigating to 70% field capacity before Sectagon 42® application. Treatment can be made in the Fall or Spring before planting but Fall application is the preferred timing. Spring application can be riskier because the interval between treatment and planting is critical; see CAUTIONS listed below. Do not harvest fruit within one (1) year of application.

There are three application techniques that may be used: 1) Entire orchard site, 2) Individual tree row site, and 3) Individual tree plant site.

Entire orchard site: Inject the desired amount of Sectagon 42® into a sprinkler system to treat the entire replant site. Figure the irrigation schedule required to cover the desired treatment depth. Start the irrigation system and inject the Sectagon 42® one-third to one-half way through the cycle making sure to leave enough time at the end of the cycle to seal the application with plain water.

Individual tree row site: Two methods of application may be used to apply Sectagon 42® to individual tree row sites: Method One is to apply Sectagon 42® through a portable irrigation system such as a sprinkler or drip system; Method Two is to apply the desired amount of Sectagon 42® through a weed sprayer while the irrigation system is running. For either method and after identifying the position of the future tree row site, apply Sectagon 42® one-third to one-half way through the required irrigation cycle leaving enough time at the end of the cycle to apply plain water, sealing the Sectagon 42® in the ground.

Individual tree plant site: Use 18 to 24 fluid ounces of Sectagon 42® per 100 gallons of water. Use 16 gallons of this solution in a 4 by 4 foot planting hole. Water and product amount adjustments can be made to accommodate different size planting holes to ensure product movement to desired depth. Replace dirt removed.

TARPING: Tarping of replant sites is required when near (1/2 mile) to populated areas, such as schools, hospitals, commercial or office buildings, factories, residential areas, etc. Tarping is not required if treatment is farther than 1/2 mile from such populated areas.

CAUTIONS: INTERVAL BETWEEN TREATMENT AND PLANTING

Because Sectagon 42® is harmful to living plants, an appropriate interval must be observed between Sectagon 42® application and planting. On well-drained soils which have a light to medium texture and are not excessively wet or cold following application, planting can begin 21 to 30 days after treatment. If soils are heavy or especially high in organic matter or if they remain wet and/or cold (below 60 degrees F) following application, a minimum interval of 30 to 45 days should be observed. Where the dosage approaches the 75 gallons per acre rate, wait at least 60 days.

HARVEST OF ANY FRUIT WITHIN ONE (1) YEAR OF TREATMENT IS PROHIBITED.

CONDITIONS OF SALE–LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES

The directions on this label are believed to be reliable and should be followed carefully. Insufficient control

of pests and/or injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions, the failure to follow the label directions, or good application practices, all of which are beyond the control of Tessenderlo Kerley, Inc., or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. Tessenderlo Kerley, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use, subject to the factors noted above which are beyond the control of Tessenderlo Kerley, Inc. Tessenderlo Kerley, Inc. makes no other warranties or representations of any kind, express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose. The exclusive remedy against Tessenderlo Kerley, Inc. for any cause of action relating to the handling or use of this product is a claim of damage, and in no event shall damages or any other recovery of any kind against Tessenderlo Kerley, Inc. exceed the price of the product which causes the alleged loss, damage, injury, or other claim. Tessenderlo Kerley, Inc. shall not be liable and any and all claims against Tessenderlo Kerley, Inc. are waived, for special, indirect, incidental, or consequential damages or expense of any nature, including, but not limited to, loss of profits or income, whether or not based on the negligence of Tessenderlo Kerley, Inc. breach of warranty, strict liability in tort, or any other cause of action. Tessenderlo Kerley, Inc. and the seller offer this product, and the buyer and users accept it, subject to the foregoing conditions of sale and limitations of warranty, liability and remedies.

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Tessenderlo
KERLEY

September 30, 2009

Via: FedEx

Document Processing Desk
Dana Friedman, SRRD (AMEND)
Office of Pesticide Programs (7508P)
US Environmental Protection Agency
Room S-9626, One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202-4501

Re: Revised Sectagon 42 labeling per metam-sodium, metam-potassium and MITC 2009 RED

Dear Ms. Friedman,

In accordance with the metam-sodium, metam-potassium and MITC 2009 Amended RED label changes required for the 2010 growing season please find enclosed:

- Completed EPA Form 8570-1, Application for Registration
- One marked-up copy of the Sectagon 42 label EPA Reg. No. 61842-6 showing changes
- Four clean copies of the Sectagon 42 label EPA Reg. No. 61842-6

Please don't hesitate to contact me by phone (602) 889-8401, fax (602) 889-8430, or e-mail dkominski@tkinet.com, should you have any questions or concerns regarding this submission. Thank you for your assistance.

Sincerely,

Dawn Kominski
Director of Regulatory Affairs
Tessenderlo Kerley, Inc.

Received 10/5/09 2/

TESSENDERLO KERLEY, INC., member of TESSENDERLO GROUP

P.O. Box 15627, Phoenix, Arizona 85060-5627
2255 North 44th Street, Suite 300, Phoenix, Arizona 85008-3279
Tel. (602) 889-8300, Fax (602) 889-8430

Please read instructions on reverse before completing form. Form Approved. OMB No. 2070-0060

Print Form

EPA

United States
Environmental Protection Agency
Washington, DC 20460

[ ] Registration
[X] Amendment
[ ] Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 61842-6	2. EPA Product Manager M. Waller	3. Proposed Classification [ ] None [X] Restricted
4. Company/Product (Name) Tessenderlo Kerley, Inc. / Sectagon 42	PM# 21	
5. Name and Address of Applicant *(Include ZIP Code)* Tessenderlo Kerley, Inc. 2255 N. 44th Street, Suite 300 Phoenix, AZ 85008 [ ] *Check if this is a new address*	6. **Expedited Review.** In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

[X] Amendment - Explain below.
[ ] Resubmission in response to Agency letter dated _____
[ ] Notification - Explain below.
[ ] Final printed labels in response to Agency letter dated _____
[ ] "Me Too" Application.
[ ] Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Revised labeling submitted in accordance with the metam-sodium, metam-potassium and MITC 2009 Amended RED label changes required for the 2010 growing season.

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes*	[ ] Yes	[ ] Yes	[ ] Metal
[X] No	[X] No	[X] No	[ ] Plastic
			[ ] Glass
			[ ] Paper
			[ ] Other (Specify) _____
* *Certification must be submitted*	If "Yes" Unit Packaging wgt. / No. per container	If "Yes" Package wgt / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
[X] Label [ ] Container	Bulk	[ ] On Label [X] On Labeling accompanying product

6. Manner in Which Label is Affixed to Product [ ] Lithograph [ ] Paper glued [ ] Stenciled [X] Other Accopanies bulk

Section - IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Dawn Kominski	Dir. Regulatory Affairs	602-889-840

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received (Stamped)

2. Signature Dawn Kominski	3. Title Director Regulatory Affairs
4. Typed Name Dawn Kominski	5. Date Sep 30, 2009

EPA Form 8570-1 (Rev. 8-94) Previous editions are obsolete. White - EPA File Copy (original) Yellow - Applicant Copy