61842-7 9/24/2013 1/71

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

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Mr. Michael Kellogg
Tessenderlo Kerley, Inc.
c/o Pyxis Regulatory Consulting Inc.
4110 136th St. NW
Gig Harbor, WA 98332

SEP 2 4 2013

Subject: Sectagon- K54
EPA Reg. No. 61842-7
EPA Decision Number: 481083
Your label submitted on 7/15/13 and resubmitted on 9/20/13 to update buffer zones

Dear Mr. Kellogg:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is conditionally accepted under section 3(C)(7)(A) provided that you:

Submit and/or cite all data required for reregistration/registration review of your product under FIFRA when the Agency requires all registrants of similar products to submit such data. See the data requirements in DCI ID# GDCI-039002-28888, issued on March 25, 2010 and DCI ID# GDCI-039002-839, issued on March 24, 2011.

A stamped copy of the label "Accepted" is enclosed for your records. This label supersedes all other previously accepted labels. Please submit one copy of the final printed labels before the product is released for shipment. If you have any questions please contact Heather Garvie by phone at: 703-308-0034 or via email at: garvie.heather@epa.gov .

Sincerely,

Shaja Joyner

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

Enclosures: Label Stamped "Accepted"
The Health Effects Division's Review of the Metam Task Force Submission Entitled, *"Label Amendment for the Shank Injection Bedded Application Buffer Zone Tables in EPA Reg No. 61842-6 and 61842-7"*; dated 9/24/13, DP#414527 and 414525

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NovaSource®
Tessenderlo Group

ACCEPTED
SEP 24 2013
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg No. 61842-7

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 – K54®

Agricultural Fumigant

A SOIL FUMIGANT SOLUTION FOR SPECIFIC CROPS AS LISTED IN THIS LABEL
MAY BE APPLIED BY WATER-RUN APPLICATIONS (E.G. CHEMIGATION, SOIL INJECTION OR SOIL BEDDING) EQUIPMENT TO SUPPRESS AND/OR CONTROL SOIL-BORNE PESTS IN LISTED ORNAMENTALS, FOOD AND FIBER CROPS. Controls or suppresses weeds such as Bermudagrass, Chickweed, Dandelion, Ragweed, Henbit, Lambsquarter, Pigweed, Watercress, Amaranths species: Watercress, Johnsongrass, Nightshade, Nutsedge, Wild Morning-Glory and Purlsane, Nematodes and Symphylids. Soil-Borne diseases such as Rhizoctonia, Pythium, Phyophthora, Verticillum, Sclerotinia, Oak Root Fungus and Club Root of Crucifers.

ACTIVE INGREDIENT:	
Potassium N-methyldithiocarbamate	54.0%
OTHER INGREDIENTS:	46.0%
TOTAL:	100.0%

Contains 5.63 lbs. active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN

DANGER PELIGRO

POISON

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 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. For medical emergencies contact 1-866-374-1975. For transportation emergencies including spill, leak or fire, contact CHEMTREC at 1-800-424-9300.	
NOTE TO PHYSICIAN	
Probable mucousal damage may contraindicate the use of gastric lavage.	

EPA Reg. No. 61842-7 **EPA Est. No. 61842-WA-001** **EPA Est. No. 61842-ID-001**
EPA Est No. 61842-ID-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

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PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER

Fatal if absorbed through skin. Corrosive. Causes skin burns and irreversible eye damage. Do not get in eyes, on skin, or on clothing. May be fatal if swallowed or inhaled. Do not breathe vapor or spray mist. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

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 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).

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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/PPE 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 washwaters or rinsate.

Metam-potassium 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.

DIRECTIONS FOR USE
Restricted Use Pesticide

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 Part 170. This standard contains requirements for the protection of agricultural workers on farms, in forests, nurseries, 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);

The terminated crop must not be used for any food or feed purposes after Sectagon-54 has been applied;

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); stevia; 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 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 Treatment Area signs.

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

- "DANGER/PELIGRO"
- "Area under fumigation – DO NOT ENTER/NO ENTRE"
- "Metam Potassium Soil Fumigation in use"
- The date and time of fumigation
- The date and time the entry restricted period is over
- "Sectagon-K54", 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-K5 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-K54 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-K54 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) 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.

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.

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.

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.

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-K54 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.

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

- 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-K54 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 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

- 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

Maximum application rate is 360 lbs metam potassium/A and 63.9 gallons Sectagon-K54/A

CALCULATING THE BROADCAST EQUIVALENT APPLICATION RATE

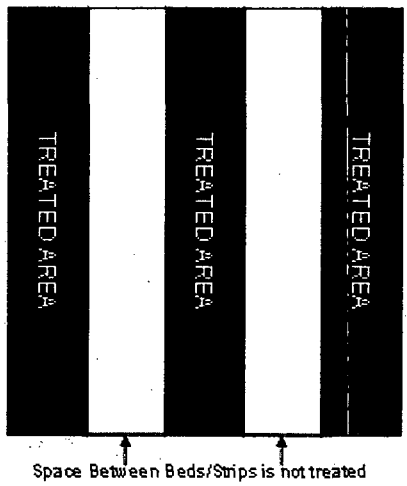
To calculate the broadcast equivalent rate for bedded or strip applications the following information is needed:

- 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)

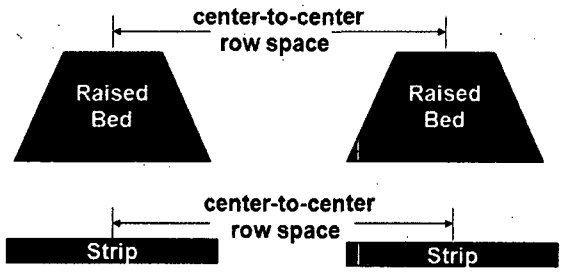


The "broadcast equivalent rate" must be calculated with the following formula:

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

- 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.

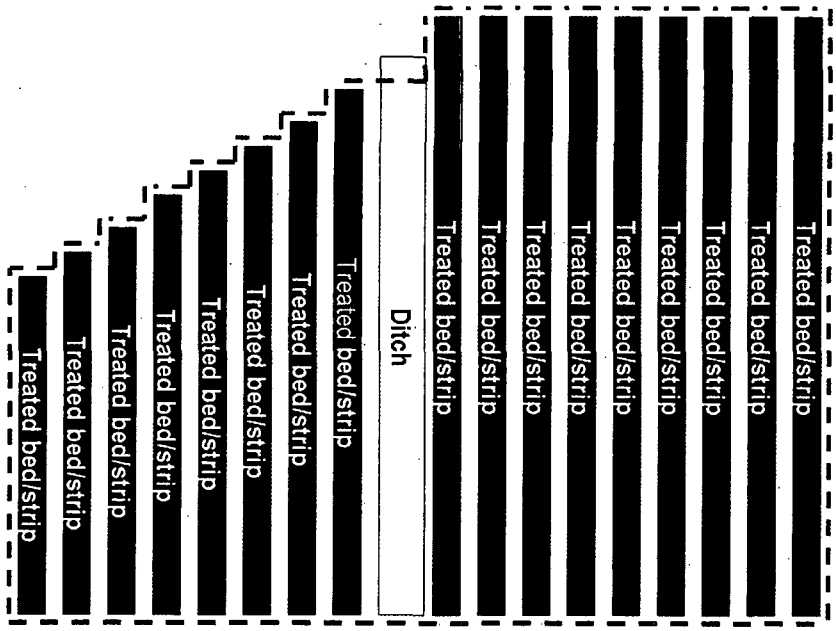
Figure 2. Center Row Spacing



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
- 63.9 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 (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 **gallons product/ treated acre applied in the bed**

= $\frac{\text{30 inch width beds}}{\text{60 inch row spacing}}$ x $\frac{\text{9.75 acres}}{\text{10 acres}}$ x **63.9 gallons product/ *treated acre***

= **31 gallons product/acre**

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.
  - *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.

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

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
5	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
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
10	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	26	31	36
14	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
15	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
16	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
17	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
18	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
19	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
20	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
21	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
22	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
23	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
24	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
25	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
26	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
27	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
28	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
29	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
30	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
31	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
32	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
33	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
34	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
35	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
36	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
37	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
38	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
39	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
40	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
41	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
42	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
43	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
44	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
45	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
46	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
47	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
48	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
48	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
49	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
50	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
51	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
52	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
53	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
54	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
55	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
56	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
57	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
58	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
59	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
60	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
61	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
62	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

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	120	140	160
5	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
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
10	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
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
17	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
24	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
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
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
37	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
44	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
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
51	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
57	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

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 (54%)	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
1	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
2	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
3	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
4	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
5	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
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	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	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	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	25
10	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
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	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	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	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	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	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	40
17	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	55
18	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	44	63	83
19	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	44	63	83	102
20	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	28	30	55	80	105	130
21	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	46	65	78	95	118	140	163	186
22	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	28	30	68	105	133	160	180	200	220	240
23	25	25	25	25	25	25	25	25	25	25	25	25	25	25	31	34	43	51	86	120	150	179	199	219	239	259
24	25	25	25	25	25	25	25	25	25	25	25	25	25	25	36	43	58	72	104	136	167	198	218	238	258	278
25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	42	52	73	94	122	151	184	218	238	258	278	298
26	25	25	25	25	25	25	25	25	25	25	25	25	25	25	48	61	88	115	141	166	202	237	257	277	297	317
27	25	25	25	25	25	25	25	25	25	25	25	25	25	25	53	70	103	136	159	182	219	256	276	296	316	336
28	25	25	25	25	25	25	25	25	25	25	25	25	25	25	59	79	118	157	177	197	236	275	295	315	335	355
29	25	25	25	25	25	25	25	25	25	25	25	31	41	47	80	101	138	177	200	223	259	295	318	341	364	388
30	25	25	25	25	25	25	25	25	25	25	25	36	56	69	100	122	157	196	223	249	282	315	341	367	394	420
31	25	25	25	25	25	25	25	25	25	25	25	42	72	91	121	144	177	216	246	276	305	335	364	394	423	453
32	25	25	25	25	25	25	25	25	25	25	25	48	87	113	142	166	197	236	269	302	328	354	387	420	453	485
33	25	25	25	25	25	25	25	25	25	25	25	53	103	135	163	188	217	256	292	328	351	374	410	446	482	518
34	25	25	25	25	25	25	25	25	25	25	25	59	118	157	183	209	236	275	315	354	374	394	433	472	511	550
35	25	25	25	25	25	25	25	25	25	25	40	79	134	173	199	225	252	291	334	378	406	433	471	508	545	582
36	25	25	25	25	25	25	25	25	25	25	54	98	150	189	215	241	268	307	354	401	437	473	508	543	578	614
37	25	25	25	25	25	25	25	25	25	25	69	118	165	204	230	256	283	322	374	425	469	512	546	579	612	645
38	25	25	25	25	25	25	25	25	25	25	83	137	181	220	246	272	299	338	393	448	500	552	583	614	646	677
39	25	25	25	25	25	25	25	25	25	25	98	157	197	236	262	288	315	354	413	472	532	591	621	650	680	709
40	25	25	25	25	25	27	30	32	35	37	108	164	204	243	271	299	335	374	433	492	551	611	645	680	714	748
41	25	25	25	25	25	30	35	40	45	49	118	170	210	249	280	310	354	393	453	512	571	630	670	709	748	788
42	25	25	25	25	25	32	40	47	54	62	128	177	217	256	289	321	374	413	472	532	591	650	694	739	783	827
43	25	25	25	25	25	35	45	54	64	74	137	184	223	262	297	332	394	433	492	551	611	670	719	768	817	867
44	25	25	25	25	25	37	49	62	74	86	147	190	230	269	306	343	414	453	512	571	630	690	744	798	852	906
45	25	25	25	25	25	40	54	69	83	98	157	197	236	275	315	354	433	472	532	591	650	709	768	827	886	945
46	25	25	25	25	25	43	59	77	93	110	167	204	243	284	324	365	452	491	552	611	670	729	790	857	924	991
47	25	25	25	25	25	46	65	85	102	122	177	211	249	290	333	376	472	511	572	631	690	748	815	886	957	1028

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

Application Block Size (acres)

Broadcast Equivalent Application Rate (Gallons product/A) Gal/A	1	5	6	7	8	9	10	20	30	40	50	60	70	80
6	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
16	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
27	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
35	25	25	25	25	25	25	25	25	25	25	42	57	64	72
39	25	25	25	25	25	25	25	25	25	25	58	88	103	118
43	25	25	25	25	25	25	25	25	25	25	74	119	142	164
47	25	25	25	25	25	25	25	25	25	25	90	150	180	210
50	25	25	27	29	30	32	34	49	64	75	135	188	218	248
54	25	25	29	32	36	39	43	73	103	125	180	225	255	285
58	25	25	30	36	41	47	52	97	142	180	225	263	293	323
62	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
	6	50	50	50	75	75	100	100	200	200	200	250	300	350	400	600	800
	11	80	100	100	138	138	200	200	300	300	300	350	400	450	500	700	900
	16	125	150	150	200	200	300	300	400	400	400	450	500	550	600	800	1000
	19	160	188	200	250	269	363	382	475	488	500	550	600	650	700	900	1100
	23	185	225	250	300	338	425	463	550	575	600	650	700	750	800	1000	1200
	27	205	263	300	350	407	488	544	625	663	700	750	800	850	900	1100	1300
	31	220	300	350	400	475	550	625	700	750	800	850	900	950	1000	1200	1400
	35	235	313	375	450	557	638	719	825	888	950	1000	1050	1100	1150	1350	1550
	39	250	325	400	500	638	725	813	950	1025	1100	1150	1200	1250	1300	1500	1700
	43	262	338	425	550	719	813	907	1075	1163	1250	1300	1350	1400	1450	1650	1850
	47	275	350	450	600	800	900	1000	1200	1300	1400	1450	1500	1550	1600	1800	2000
	50	288	363	488	650	850	975	1100	1300	1400	1500	1563	1625	1688	1750	1950	2150
	54	300	375	525	700	900	1050	1200	1400	1500	1600	1675	1750	1825	1900	2100	2300
	58	312	389	563	750	950	1125	1300	1500	1600	1700	1788	1875	1963	2050	2250	2450
	62	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**
6	25	25	25	25	25	50	50	75	75	75	88	100	150	200	400	600
11	25	38	50	50	50	75	75	138	138	138	169	200	250	300	500	700
16	25	50	75	75	75	100	100	200	200	200	250	300	350	400	600	800
19	37	63	94	107	125	163	182	275	288	300	350	400	450	500	700	900
23	50	75	113	138	175	225	263	350	375	400	450	500	550	600	800	1000
27	62	88	132	169	225	288	344	425	463	500	550	600	650	700	900	1100
31	75	100	150	200	275	350	425	500	550	600	650	700	750	800	1000	1200
35	87	113	175	250	357	438	519	625	688	750	800	850	900	950	1150	1350
39	100	125	200	300	438	525	613	750	825	900	950	1000	1050	1100	1300	1500
43	112	138	225	350	519	613	707	875	963	1050	1100	1150	1200	1250	1450	1650
47	125	150	250	400	600	700	800	1000	1100	1200	1250	1300	1350	1400	1600	1800
50	138	171	288	450	650	775	900	1100	1200	1300	1363	1425	1488	1550	1750	1950
54	150	175	325	500	700	850	1000	1200	1300	1400	1475	1550	1625	1700	1900	2100
58	162	188	363	550	750	925	1100	1300	1400	1500	1588	1675	1763	1850	2050	2250
62	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
	6	25	25	25	25	25	25	25	50	63	75	88	100	125	150	350	550
	11	25	25	38	38	38	50	50	75	100	125	138	150	188	225	425	625
	16	25	25	50	50	50	75	75	100	138	175	188	200	250	300	500	700
	19	30	35	63	70	75	107	119	150	192	232	254	275	325	375	575	775
	23	35	50	75	89	100	138	163	200	244	288	319	350	400	450	650	850
	27	40	63	88	107	125	169	207	250	297	344	385	425	475	525	725	925
	31	50	75	100	125	150	200	250	300	350	400	450	500	550	600	800	1000
	35	60	94	125	157	188	238	294	363	419	475	532	588	644	700	900	1100
	39	70	113	150	188	225	275	338	425	488	550	613	675	738	800	1000	1200
	43	85	132	175	219	263	313	382	488	557	625	694	763	832	900	1100	1300
	47	105	150	200	250	300	350	425	550	625	700	775	850	925	1000	1200	1400
	50	125	163	225	288	350	413	494	613	694	775	857	938	1019	1100	1300	1500
	54	145	175	250	325	400	475	563	675	763	850	938	1025	1113	1200	1400	1600
	58	165	188	275	363	450	538	632	738	832	925	1019	1113	1207	1300	1500	1700
	62	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

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	90	100	110	120
6	25	25	25	25	25	25	25	25	25	25	25	25	50	50	75	75	75	88	100	150	200
11	38	38	38	38	38	40	43	45	48	50	50	50	75	75	138	138	138	169	200	250	300
16	50	50	50	50	50	55	60	65	70	75	75	75	100	100	200	200	200	250	300	350	400
19	55	57	58	60	63	69	75	81	87	94	107	125	163	182	275	288	300	350	400	450	500
23	62	65	67	70	75	83	90	98	105	113	138	175	225	263	350	375	400	450	500	550	600
27	68	73	78	83	88	97	106	114	123	132	169	225	288	344	425	463	500	550	600	650	700
31	75	81	88	94	100	110	120	130	140	150	200	275	350	425	500	550	600	650	700	750	800
35	80	88	97	105	113	125	138	150	163	175	250	357	438	519	625	688	750	800	850	900	950
39	87	97	106	116	125	131	140	146	155	200	300	438	525	613	750	825	900	950	1000	1050	1100
43	93	104	116	127	138	155	173	190	208	225	350	519	613	707	875	963	1050	1100	1150	1200	1250
47	100	113	125	138	150	170	190	210	230	250	400	600	700	800	1000	1100	1200	1100	1300	1350	1400
50	115	129	143	157	171	185	199	213	283	288	450	650	775	900	1100	1200	1300	1363	1425	1488	1550
54	125	138	150	163	175	205	235	265	295	325	500	700	850	1000	1200	1300	1400	1475	1550	1625	1700
58	137	150	163	175	188	223	258	293	328	363	550	750	925	1100	1300	1400	1500	1588	1675	1763	1850
62	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)	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
5	28	31	34	36	39	42	44	47	51	55	70	86	94	102	109	125	141	156	164	180	195	211	234
6	34	37	41	44	47	50	53	56	61	66	84	103	113	122	131	150	169	188	197	216	234	253	281
7	40	44	47	51	55	58	62	66	71	77	98	120	131	142	153	175	197	219	230	252	273	295	328
8	46	50	54	58	63	67	71	75	81	88	113	138	150	163	175	200	225	250	263	288	313	338	375
9	51	56	61	66	70	75	80	84	91	98	127	155	169	183	197	225	253	281	295	323	352	380	422
10	57	62	68	73	78	83	88	94	102	109	141	172	188	203	219	250	281	313	328	359	391	422	469
11	63	68	74	80	86	92	97	103	112	120	155	189	206	223	241	275	309	344	361	395	430	464	516
12	68	75	81	87	94	100	106	113	122	131	169	206	225	244	263	300	338	375	394	431	469	506	563
13	74	81	88	95	102	108	115	122	132	142	183	223	244	264	284	325	366	406	427	467	508	548	609
14	80	87	95	102	109	117	124	131	142	153	197	241	263	284	306	350	394	438	459	503	547	591	656
16	91	100	108	117	125	134	142	150	163	175	225	275	300	325	350	400	450	500	525	575	625	675	750
17	97	106	115	124	133	142	150	159	173	186	239	292	319	345	372	425	478	531	558	611	664	717	797
18	108	118	128	138	148	159	168	178	193	208	267	327	356	386	416	475	534	594	623	683	742	802	891
19	114	124	135	146	156	167	177	188	203	219	281	344	375	406	438	500	563	625	656	719	781	844	938
20	119	131	142	153	164	175	186	197	213	230	295	361	394	427	459	525	591	656	689	755	820	886	984
21	125	137	149	160	172	184	195	206	223	241	309	378	413	447	481	550	619	688	722	791	859	928	1031
22	131	143	155	167	180	192	203	216	234	252	323	395	431	467	503	575	647	719	755	827	898	970	1078
23	137	149	162	175	188	200	212	225	244	263	338	413	450	488	525	600	675	750	788	863	938	1013	1125
24	142	155	169	182	195	209	221	234	254	273	352	430	469	508	547	625	703	781	820	898	977	1055	1172
25	148	162	176	189	203	217	230	244	264	284	366	447	488	528	569	650	731	813	853	934	1016	1097	1219
26	154	168	182	197	211	225	239	253	274	295	380	464	506	548	591	675	759	844	886	970	1055	1139	1266
27	159	174	189	204	219	234	248	263	284	306	394	481	525	569	613	700	788	875	919	1006	1094	1181	1313
28	165	180	196	211	227	242	256	272	295	317	408	498	544	589	634	725	816	906	952	1042	1133	1223	1359
29	171	187	203	218	234	250	265	281	305	328	422	516	563	609	656	750	844	938	984	1078	1172	1266	1406
30	176	193	209	226	242	259	274	291	315	339	436	533	581	630	678	775	872	969	1017	1114	1211	1308	1453
31	182	199	216	233	250	267	283	300	325	350	450	550	600	650	700	800	900	1000	1050	1150	1250	1350	1500
32	188	205	223	240	258	275	292	309	335	361	464	567	619	670	722	825	928	1031	1083	1186	1289	1392	1547
33	193	211	230	248	266	284	301	319	345	372	478	584	638	691	744	850	956	1063	1116	1222	1328	1434	1594
34	199	218	236	255	273	292	310	328	355	383	492	602	656	711	766	875	984	1094	1148	1258	1367	1477	1641
35	205	224	243	262	281	300	318	338	366	394	506	619	675	731	788	900	1013	1125	1181	1294	1406	1519	1688
36	210	230	250	269	289	309	327	347	376	405	520	636	694	752	809	925	1041	1156	1214	1330	1445	1561	1734
37	216	236	257	277	297	317	336	356	386	416	534	653	713	772	831	950	1069	1188	1247	1366	1484	1603	1781
38	222	243	263	284	305	325	345	366	396	427	548	670	731	792	853	975	1097	1219	1280	1402	1523	1645	1828
39	228	249	270	291	313	334	354	375	406	438	563	688	750	813	875	1000	1125	1250	1313	1438	1563	1688	1875
40	233	255	277	299	320	342	363	384	416	448	577	705	769	833	897	1025	1153	1281	1345	1473	1602	1730	1922
41	239	261	284	306	328	350	371	394	427	459	591	722	788	853	919	1050	1181	1313	1378	1509	1641	1772	1969
42	245	267	290	313	336	359	380	403	437	470	605	739	806	873	941	1075	1209	1344	1411	1545	1680	1814	2016
43	250	274	297	320	344	367	389	413	447	481	619	756	825	894	963	1100	1238	1375	1444	1581	1719	1856	2063
44	256	280	304	328	352	375	398	422	457	492	633	773	844	914	984	1125	1266	1406	1477	1617	1758	1898	2109
45	262	286	311	335	359	384	407	431	467	503	647	791	863	934	1006	1150	1294	1438	1509	1653	1797	1941	2156
46	267	292	317	342	367	392	416	441	477	514	661	808	881	955	1028	1175	1322	1469	1542	1689	1836	1983	2203
47	273	299	324	350	375	401	425	450	488	525	675	825	900	975	1050	1200	1350	1500	1575	1725	1875	2025	2250
48	279	305	331	357	383	409	433	459	498	536	689	842	919	995	1072	1225	1378	1531	1608	1761	1914	2067	2297
49	290	317	344	371	398	426	451	478	518	558	717	877	956	1036	1116	1275	1434	1594	1673	1833	1992	2152	2391
51	296	323	351	379	406	434	460	488	528	569	731	894	975	1056	1138	1300	1463	1625	1706	1869	2031	2194	2438
52	307	336	365	393	422	451	478	506	548	591	759	928	1013	1097	1181	1350	1519	1688	1772	1941	2109	2278	2531
53	313	342	371	400	430	459	486	516	559	602	773	945	1031	1117	1203	1375	1547	1719	1805	1977	2148	2320	2578
54	319	348	378	408	438	467	495	525	569	613	788	963	1050	1138	1225	1400	1575	1750	1838	2013	2188	2363	2625
56	324	354	385	415	445	476	504	534	579	623	802	980	1069	1158	1247	1425	1603	1781	1870	2048	2227	2405	2640
56	330	361	392	422	453	484	513	544	589	634	816	997	1088	1178	1269	1450	1631	1813	1903	2084	2266	2447	2681
57	336	367	398	430	461	492	522	553	599	645	830	1014	1106	1198	1291	1475	1659	1844	1936	2120	2305	2489	2730
58	341	373	405	437	469	501	531	563	609	656	844	1031	1125	1219	1313	1500	1688	1875	1969	2156	2344	2531	2780
59	347	379	412	444	477	509	539	572	620	667	858	1048	1144	1239	1334	1525	1716	1906	2002	2192	2383	2573	2821
60	353	386	419	451	484	517	548	581	630	678	872	1066	1163	1259	1356	1550	1744	1938	2034	2228	2422	2616	2870
61	358	392	425	459	492	526	557	591	640	689	886	1083	1181	1280	1378	1575	1772	1969	2067	2264	2461	2640	2911
62	364	398	432	466	500	534	566	600	650	700	900	1100	1200	1300	1400	1600	1800	2000	2100	2300	2500	2686	2961

Buffer zone distances cannot be greater than 1/2 mile (2,640 feet). If after applying applicable credits the buffer zone distances are still greater than 1/2 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
3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
5	25	25	25	25	25	25	25	25	25	25	38	38	50	50	63	76	88
8	25	25	25	25	25	25	25	25	25	25	50	50	75	75	100	125	150
10	25	25	25	25	25	26	28	29	31	32	57	57	82	82	113	140	163
12	25	25	25	25	25	28	30	33	35	38	63	63	88	88	125	150	175
14	25	25	25	25	25	29	33	36	40	44	69	69	94	94	138	163	188
16	25	25	25	25	25	30	35	40	45	50	75	75	100	100	150	175	200
17	25	27	29	30	32	37	42	47	52	57	82	94	113	125	175	207	238
19	25	28	32	35	38	43	48	53	58	63	88	113	125	150	200	250	275
21	25	30	35	39	44	49	54	59	64	69	94	132	138	175	225	269	313
23	25	31	38	44	50	55	60	65	70	75	100	150	150	200	250	300	350
25	32	37	41	46	50	56	63	69	76	82	125	188	200	250	300	350	400
27	38	41	44	47	50	58	65	73	80	88	150	225	250	300	350	400	450
29	44	46	47	49	50	59	68	76	85	94	175	263	300	350	400	450	500
31	50	50	50	50	50	60	70	80	90	100	200	300	350	400	450	500	550
33	51	52	53	54	55	64	74	85	96	106	213	319	372	425	478	531	584
35	52	54	56	58	60	68	79	90	101	113	225	338	394	450	506	563	634
37	53	56	59	62	65	71	83	95	107	119	238	356	416	475	534	594	684
39	54	58	62	66	70	75	88	100	113	125	250	375	438	500	563	625	734
41	55	60	65	70	75	79	92	105	118	131	263	394	459	525	591	656	784
43	56	62	68	74	80	83	96	110	124	138	275	413	481	550	619	688	834
45	57	64	71	78	85	86	101	115	129	144	288	431	503	575	647	719	884
47	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

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
5	25	25	25	25	25	34	36	38	41	43	55	63	70	78	90	102	113	125	137	148	160	172	195
6	25	25	25	35	38	40	43	46	49	52	66	75	84	94	108	122	136	150	164	178	192	206	234
7	25	34	37	40	44	47	50	54	57	60	77	88	98	109	126	142	159	175	191	208	224	241	273
8	35	39	43	46	50	54	58	61	65	69	88	100	113	125	144	163	181	200	219	238	256	275	313
9	39	44	48	52	56	60	65	69	73	77	98	113	127	141	162	183	204	225	246	267	288	309	352
10	44	48	53	58	63	67	72	77	81	86	109	125	141	156	180	203	227	250	273	297	320	344	391
11	48	53	58	64	69	74	79	84	89	95	120	138	155	172	198	223	249	275	301	327	352	378	430
12	53	58	64	69	75	81	86	92	98	103	131	150	169	188	216	244	272	300	328	356	384	413	469
13	57	63	69	75	81	87	93	100	106	112	142	163	183	203	234	264	295	325	355	386	416	447	508
14	61	68	74	81	88	94	101	107	114	120	153	175	197	219	252	284	317	350	383	416	448	481	547
16	70	78	85	93	100	108	115	123	130	138	175	200	225	250	288	325	363	400	438	475	513	550	625
17	74	82	90	98	106	114	122	130	138	146	186	213	239	266	305	345	385	425	465	505	545	584	664
18	83	92	101	110	119	128	137	145	154	163	208	238	267	297	341	386	430	475	520	564	609	653	742
19	88	97	106	116	125	134	144	153	163	172	219	250	281	313	359	406	453	500	547	594	641	688	781
20	92	102	112	121	131	141	151	161	171	180	230	263	295	328	377	427	476	525	574	623	673	722	820
21	96	107	117	127	138	148	158	168	179	189	241	275	309	344	395	447	498	550	602	653	705	756	859
22	101	111	122	133	144	155	165	176	187	198	252	288	323	359	413	467	521	575	629	683	737	791	898
23	105	116	128	139	150	161	173	184	195	206	263	300	338	375	431	488	544	600	656	713	769	825	938
24	109	121	133	145	156	168	180	191	203	215	273	313	352	391	449	508	566	625	684	742	801	859	977
25	114	126	138	150	163	175	187	199	211	223	284	325	366	406	467	528	589	650	711	772	833	894	1016
26	118	131	143	156	169	181	194	207	219	232	295	338	380	422	485	548	612	675	738	802	865	928	1055
27	123	136	149	162	175	188	201	214	228	241	306	350	394	438	503	569	634	700	766	831	897	963	1094
28	127	140	154	168	181	195	208	222	236	249	317	363	408	453	521	589	657	725	793	861	929	997	1133
29	131	145	159	173	188	202	216	230	244	258	328	375	422	469	539	609	680	750	820	891	961	1031	1172
30	136	150	165	179	194	208	223	237	252	266	339	388	436	484	557	630	702	775	848	920	993	1066	1211
31	140	155	170	185	200	215	230	245	260	275	350	400	450	500	575	650	725	800	875	950	1025	1100	1250
32	144	160	175	191	206	222	237	253	268	284	361	413	464	516	593	670	748	825	902	980	1057	1134	1289
33	149	165	181	197	213	228	244	260	276	292	372	425	478	531	611	691	770	850	930	1009	1089	1169	1328
34	153	170	186	202	219	235	252	268	284	301	383	438	492	547	629	711	793	875	957	1039	1121	1203	1367
35	158	174	191	208	225	242	259	276	293	309	394	450	506	563	647	731	816	900	984	1069	1153	1238	1406
36	162	179	197	214	231	249	266	283	301	318	405	463	520	578	665	752	838	925	1012	1098	1185	1272	1445
37	166	184	202	220	238	255	273	291	309	327	416	475	534	594	683	772	861	950	1039	1128	1217	1306	1484
38	171	189	207	225	244	262	280	299	317	335	427	488	548	609	701	792	884	975	1066	1158	1249	1341	1523
39	175	194	213	231	250	269	288	306	325	344	438	500	563	625	719	813	906	1000	1094	1188	1281	1375	1563
40	179	199	218	237	256	275	295	314	333	352	448	513	577	641	737	833	929	1025	1121	1217	1313	1409	1602
41	184	203	223	243	263	282	302	322	341	361	459	525	591	656	755	853	952	1050	1148	1247	1345	1444	1641
42	188	208	228	249	269	289	309	329	349	370	470	538	605	672	773	873	974	1075	1176	1277	1377	1478	1680
43	193	213	234	254	275	296	316	337	358	378	481	550	619	688	791	894	997	1100	1203	1306	1409	1513	1719
44	197	218	239	260	281	302	323	345	366	387	492	563	633	703	809	914	1020	1125	1230	1336	1441	1547	1758
45	201	223	244	266	288	309	331	352	374	395	503	575	647	719	827	934	1042	1150	1258	1366	1473	1581	1797
46	206	228	250	272	294	316	338	360	382	404	514	588	661	734	845	955	1065	1175	1285	1395	1505	1616	1836
47	210	233	255	278	300	323	345	368	390	413	525	600	675	750	863	975	1088	1200	1313	1425	1538	1650	1875
48	214	237	260	283	306	329	352	375	398	421	536	613	689	766	880	995	1110	1225	1340	1455	1570	1684	1914
49	223	247	271	295	319	343	367	390	414	438	558	638	717	797	916	1036	1155	1275	1395	1514	1634	1753	1992
51	228	252	276	301	325	349	374	398	423	447	569	650	731	813	934	1056	1178	1300	1422	1544	1666	1788	2031
52	236	262	287	312	338	363	388	413	439	464	591	675	759	844	970	1097	1223	1350	1477	1603	1730	1856	2109
53	241	266	292	318	344	370	395	421	447	473	602	688	773	859	988	1117	1246	1375	1504	1633	1762	1891	2148
54	245	271	298	324	350	376	403	429	455	481	613	700	788	875	1006	1138	1269	1400	1531	1663	1794	1925	2188
55	249	276	303	330	356	383	410	436	463	490	623	713	802	891	1024	1158	1291	1425	1559	1692	1826	1959	2227
56	254	281	308	335	363	390	417	444	471	498	634	725	816	906	1042	1178	1314	1450	1586	1722	1858	1994	2266
57	258	286	313	341	369	396	424	452	479	507	645	738	830	922	1060	1198	1337	1475	1613	1752	1890	2028	2305
58	263	291	319	347	375	403	431	459	488	516	656	750	844	938	1078	1219	1359	1500	1641	1781	1922	2063	2344
59	267	295	324	353	381	410	438	467	496	524	667	763	858	953	1096	1239	1382	1525	1668	1811	1954	2097	2383
60	271	300	329	358	388	417	446	475	504	533	678	775	872	969	1114	1259	1405	1550	1695	1841	1986	2131	2422
61	276	305	335	364	394	423	453	482	512	541	689	788	886	984	1132	1280	1427	1575	1723	1870	2018	2166	2461
62	280	310	340	370	400	430	460	490	520	550	700	800	900	1000	1150	1300	1450	1600	1750	1900	2050	2200	2500

Broadcast Equivalent Application Rate (Gallons product/A)

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
6	50	50	50	75	75	100	100	200	200	200	250	300	350	400
11	80	100	100	138	138	200	200	300	300	300	350	400	450	500
16	125	150	150	200	200	300	300	400	400	400	450	500	550	600
19	160	188	200	250	269	363	382	475	488	500	550	600	650	700
23	185	225	250	300	338	425	463	550	575	600	650	700	750	800
27	205	263	300	350	407	488	544	625	663	700	750	800	850	900
31	220	300	350	400	475	550	625	700	750	800	850	900	950	1000
35	235	313	375	450	557	638	719	825	888	950	1000	1050	1100	1150
39	250	325	400	500	638	725	813	950	1025	1100	1150	1200	1250	1300
43	262	338	425	550	719	813	907	1075	1163	1250	1300	1350	1400	1450
47	275	350	450	600	800	900	1000	1200	1300	1400	1450	1500	1550	1600
50	288	363	488	650	850	975	1100	1300	1400	1500	1563	1625	1688	1750
54	300	375	525	700	900	1050	1200	1400	1500	1600	1675	1750	1825	1900
58	312	389	563	750	950	1125	1300	1500	1600	1700	1788	1875	1963	2050
62	325	400	600	800	1000	1200	1400	1600	1700	1800	1900	2000	2100	2200

BUFFER ZONE CREDITS

The buffer zone distances for Sectagon-K54 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.epa.gov/pesticides/tarpcredits/ 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%.

<u>Examples of Buffer Zone Calculations with Credits Applied</u>

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 Potassium Sectagon-K54 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:
    - 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
  - Site 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 within 1/4 mile of the application block if the buffer zone is greater than 300 feet, or 1/8 mile if the buffer zone is 300 feet or less.
    - comments
- 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 in the application block, description of soil moisture and 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, part number and color
    - Organic matter content
    - Clay content
    - 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
    - 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 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
- 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 (including date and time), equipment failure, or other emergency and emergency procedures followed (if applicable).
- Communication between applicator, owner and other on-site handlers (if applicable)
  - Record additional dates persons were contacted
- Air monitoring results:
  - Date(s), time(s) and location(s) of sensory irritation or air sample measurement with the direct read detection device
  - Handler name and task/activity
  - Air concentration measurement with direct read detection device (if applicable)
  - Resulting action/comments (e.g., cease operations, continue operations with air-purifying respirators, implement emergency response plan)
- 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).

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

Mycorrhizae: There are occasions when Sectagon-K54 is known to temporarily reduce

mycorrhizae in agricultural soils. For those crops that are mycorrhizae dependent and planted Into Sectagon-K54 treated soils, it is necessary to practice a good fertilizer program until the mycorrhizae repopulate the treated area.

PRODUCT INFORMATION

Sectagon-K54 is a water soluble liquid. When applied to soil, the liquid is converted into a volatile fumigant (Methylisocyanate, MITC). After a sufficient interval of time, the fumigant degrades/dissipates leaving the soil ready for planting.

When to Use Maximum and Minimum Rates
The application rate of Sectagon-K54 is dependent on the soil type to be treated and the position in the soil of the pest to be suppressed or controlled. For maximum control or suppression, an understanding of the pest, its location and its respiring state will ensure maximum performance of Sectagon-K54. Generally, a light sandy soil requires a lower application rate than a heavier mineral soil. In addition, if the pest is in the upper portion of the soil profile (annual weeds), a lower application rate is generally required than if the pest is deeper in the soil profile and deeper penetration is desired (perennial weed seeds and nematodes). When a range of application rates is given in this label, consult your local agricultural extension service for more specific information.

Sectagon-K54 is recommended for the suppression or control of the following soil-borne pests that attack ornamental, food and fiber crops (consult specific cropping and application instructions for recommendations): Weeds and germinating weed seeds such as Bermudagrass, Chickweed, Dandelions, Ragweed, Henbit, Lambsquarter, Pigweed, Watercress, Johnsongrass, Nightshade, Nutsedge (suppression only), Wild Morning-glory and Purslane; Nematodes (suppression only), Symphylids (Garden Centipede) and soilborne diseases such as Rhizoctonia, Pythium, Phytophthora, Verticillium, Sclerotinia, Oak Root Fungus and Club Root of Crucifers.

Nematodes and Nutsedge: Nematode suppression is achieved when Sectagon-K54 converts to Methyl Isothiocyanate (MITC) and makes contact with active forms of the nematodes, preferably juveniles. Endo-parasites in plant residue may not be suppressed. Plant residues from previously infected crops should be completely decomposed prior to Sectagon-K54 application to ensure maximum exposure. Eggs are more difficult to suppress than juveniles, but are susceptible. Pre-irrigation has been demonstrated to stimulate egg hatch of some species and may enhance overall Sectagon-K54 performance. Nutsedge may be suppressed with Sectagon-K54 if actively growing and a high use rate is used (63.9 gal of product/acre). More often, rhizomes, roots and shoots will be controlled but the tuber will remain viable and at a later time regrow. Treatments made immediately prior to a crop planting (after the necessary waiting period) will give a weed-free period for crop establishment.

USE PRECAUTIONS

- Keep people and pets out of treated areas.
- Sectagon-K54 uses described on this label are intended for pre-plant soil preparation only. All plant foliage and any established plants growing on the treatment sites will be either severely damaged or destroyed. Keep the product off of any desirable turf or plants.
- Do not apply within 3 ft. of the drip line of desirable plants, shrubs, or trees.
- Do not use in confined areas without adequate ventilation or when fumes may enter nearby dwellings.
- Keep container tightly closed when not in use.
- **NOTE:** Sectagon-K54 will suppress and/or control only those pests in the fumigation zone at the time of treatment. Re-infestation may occur subsequent to the fumigants degradation/dissipation from the soil.

TREATMENT GUIDELINES

For optimum results, certain procedures should be observed at designated times in the treatment program. Described below are important guidelines for each of the four stages of the treatment process. Consult your Sales

Representative for the appropriate treatment program for your particular needs.

- Pre-Application
- Field Preparation Prior to Application
- Application
- Pre-Planting After Application of Sectagon-K54

PRE-APPLICATION

Sectagon-K54 is applied post-harvest and 14 to 21 days before a new crop is planted (see "Testing of Treated Soil Before Planting" section). In some areas, fall application is preferred, as the product will dissipate over the winter that allows planting to begin as soon as favorable springtime conditions arrive.

Application Rate

Apply 30 to 63.9 gallons of product per treated acre depending on crop, target pest and soil properties (or see crop-specific considerations in the Additional Information section of this label). Some of the soil properties to consider when determining the application rate include soil texture, percent organic matter and depth of soil to be treated.

Target Pest and Depth of Treatment

When application rates for this product are given in ranges, use the higher rate if pests (insects, nematodes, etc.) are present in high numbers or if the area to be treated has a history of pest problems. Consult with your state's nematologist, entomologist and plant pathologist to determine if crop rotation is more feasible or desirable than fumigation. NOTE: This product will only suppress or control pests that are in the fumigated zone at time of treatment. For control of weeds and fungi, which cause seed or seedling diseases, treatment of only the top 2 to 4 inches of soil may be required (see application specific requirements in the Good Agricultural Practices section of this label). Treatment depths greater than 4 inches maybe required for control of nematodes and fungi which occur throughout the rhizosphere. The required application rate should be increased proportionately with the depth of the treatment required. Always choose the appropriate application method to evenly distribute this product throughout the soil to the required treatment depth.

Soil Characteristics

Soil properties to consider when determining the application rate of this product include the depth of soil to be treated, soil texture, and percent organic matter. Due to the absorbing effect of humus, soils with high levels of organic matter under the surface require higher rates. For example, muck soil may require twice the rate that would be used in mineral soils. Application rates will also vary with soil texture. For example, heavy clay soils require a higher rate than light sandy soils.

Phytotoxicity

Sectagon-K54 is phytotoxic. Protect valuable, non-target plants by stopping soil applications of this product at least three feet short of the drip line of the trees, shrubs and other desirable plants. For sprinkler application, crop injury and lack of effectiveness can result from non-uniform distribution of the treated water.

APPLICATION OF SECTAGON-K54

Apply according to the methods and rates outlined below under the section "USES, RATES AND APPLICATION METHODS."

Use of Diluted Sectagon-K54

Do not store the diluted product. Do not allow the diluted solution to stand overnight. Use the diluted solution promptly after mixing with water. Flush all equipment with water after each day's use. All rinsate should be properly applied to the field.

Application in Tank Mix with Liquid Fertilizer

Sectagon-K54 may be injected in a mixture with liquid fertilizers; however, a dual injection system is preferred. Since the composition of liquid fertilizers vary considerably, the physical compatibility of each Sectagon-K54/fertilizer tank mix should be checked by using the following procedure:

Mix a small quantity of Sectagon-K54 and liquid fertilizer in the same ratio as they will be applied to the field (e.g., if 30 gallons of Sectagon-K54 and 30 gallons of liquid fertilizer are to be applied per treated acre, then the mixture should be mixed in a 30:30 or 1:1 ratio). Mix in a glass container. Mixing should be done outdoors and out of direct sunlight. Agitate the liquids to attain

a complete uniform mixture. IF A UNIFORM MIX CANNOT BE MADE, THE MIXTURE SHOULD NOT BE USED! If the mixture remains uniform for 30 minutes without agitation, the combination may be used. Should the mixture separate after 30 minutes but is readily remixed with agitation, the mixture can be used if adequate agitation is maintained in the tank.

DO NOT PLACE CAPS ON MIX JAR AS INCOMPATIBLE MIXES MAY EVOLVE HYDROGEN SULFIDE GAS. USE PROMPTLY AFTER MIXING WITH WATER OR FERTILIZER. DO NOT ALLOW THE SOLUTION TO STAND. FLUSH ALL EQUIPMENT WITH WATER AFTER EACH DAY'S USE. DISASSEMBLE VALVES AND CLEAN CAREFULLY. ALL RINSATE SHOULD BE PROPERLY APPLIED TO THE FIELD.

CHEMIGATION OF SECTAGON-K54

When applying by chemigation methods, the following directions or warnings 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 non-uniform distribution of treated water. If you have questions about calibration, you should contact your 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 prescribed safety devices for public water systems stated on the pesticide label 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 Using a Public Water System

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 alternative application and water source options before choosing to make such a connection.

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, backflow preventer (RPZ) 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 overflow rim of the reservoir tank 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 toward the injection pump.

Sprinkler (including center pivot, lateral move, end tow, side (wheel) roll, solid set or hand move irrigation systems) and Drip

Chemigation Systems

See "Field Application Where Entire Area is Being Treated" under USE, RATES AND APPLICATION METHODS section of this label.

PRE-PLANTING AFTER APPLICATION OF SECTAGON-K54

Effects of Rain

If rain occurs within 24 hours after a Sectagon-K54 application, lack of control at and near the soil surface may occur.

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

Days to Cultivating or Planting after Application
Because Sectagon-K54 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 moisture than 80% available water 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 (below 60°F) following the application, a minimum interval of 30 days 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 Sectagon-K54. 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 dissipation of Sectagon-K54 from the treated soil.
On heavy, wet soils, light surface cultivation to break up crusting and promote drying should be done 5 to 7 days after treatment if planting is to occur within 14 to 21 days after treatment. This cultivation may be repeated as necessary.
NOTE OF CAUTION: To avoid contaminating treated soils, care should be taken to assure that untreated soils are not mixed with treated soils.

Testing of Treated Soils before Planting
Fields are fumigated to control soil-borne fungi, nematodes, insects and weeds. The length of time required for fumigants to escape from the soil before plants can safely be planted varies greatly. Typically 14 to 21 days are needed under typical conditions; however, circumstances which do not favor evaporation of the fumigant can greatly lengthen the waiting period as much as up to 30 days. The release period is short with (1) low rates of fumigants, (2) light soil, (3) high soil temperatures, (4) low soil moisture, (5) shallow application depth, and (6) repeated cultivations after fumigation. Seeded crops are less susceptible to residual soil fumigant injury than transplanted crops. In general, fumigants escape slowly from cold, wet, heavy soils. If in doubt, perform either the lettuce seed test or the tomato transplant test as described elsewhere in this label. If germination occurs in 1 to 3 days or if tomato plant shows signs of wilting or root burn in 2 days, the product is still available and an extended wait period must be observed.

PACIFIC NORTHWEST STATES OF IDAHO, NEVADA, OREGON AND WASHINGTON
NOTE: When applied in the spring, allow a minimum of 14 to 21 days before planting providing no fumes are detectable. When the soil temperature is below 60°F allow a minimum of 21 days before planting. Check for fumes and aerate as needed. Use a seedling indicator plant with a hot cap to check for activity or fumes (or follow instructions in preceding paragraph). DO NOT plant if fumes are detectable or injury to plant has occurred. Re-aerate the soil and check again.

The information below describes two simple tests to assay for harmful residual soil fumigants before planting.

Lettuce Seed Test
1. With a trowel, dig into the treated soil to or just below the depth of application. Remove 2 to 4 small (1 to 2 oz) soil samples, mix lightly, and immediately place a portion in an airtight jar so that fumes will not escape. Use mason, wheat germ or similar jars with gas-tight lids.
2. Sprinkle lettuce seeds on the moistened surface of the soil and recap immediately. Prepare a similar jar with untreated soil (untreated check) for comparison.
3. Keep the jars at 65 to 85°F; do not place in direct sunlight. Direct sunlight may kill the

seed by overheating. Lettuce seed will not germinate in the dark.

4. Inspect the jars for germination in 1 to 3 days.
5. The soil is safe for planting if seeds in the treated jar germinate the same as seeds in the untreated jar.

IMPORTANT: Be sure (1) to sample the field properly in several areas, particularly low, wet areas; (2) that the lids are airtight and have no grit under the seal; and (3) that the jars are placed in indirect sunlight.

Tomato Transplant Test

Transplant 5 to 10 succulent, fast-growing tomato seedlings into fumigated beds approximately 4 to 6 inches deep. Do the same in a non-fumigated area. If there is variation in the field, plant into the heaviest, wettest soil. Inspect the seedlings in 2 days for wilting or "root burn". If plants in the fumigated zone look the same as those in the non-fumigated zone, it is safe to plant.

Which Test is Best?

Both the lettuce seed and tomato transplant tests can serve the purpose. The response of tomato seedlings varies somewhat depending on how succulent they are, the relative humidity, soil moisture and temperature. Relative differences between plants in fumigated and non-fumigated areas are key to detecting low level residues. High concentrations should produce clear-cut symptoms. Lettuce seed tested in jars are not subjected to the variations in the field that can affect the response of tomato transplants. However, the process of collecting a soil sample allows some fumigant to escape prior to sealing the jar. In addition, excess soil moisture can inhibit normal lettuce seed germination reducing the sensitivity of the test.

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

This product is not to be used in the following counties of Texas: Atascoca, Cameron, Duval, Hidalgo, Maverick, Starr, Willacy, Zapata.

Shank Applications

Apply Sectagon-K54 at the rate of 30 to 63.9 gallons of product per treated acre (or see crop-specific considerations in the Additional Information section of this label). Follow immediately with a roller to smooth and compact the soil surface. Light watering or tarping after rolling helps prevent fumigant escape. It may be necessary to stagger the injector placement on two or more tool bars to prevent soil build up during application.

When setting up your soil injection equipment with either spray blades, injection knives or coulters make sure they are evenly and closely placed to create an even application width and depth. To accomplish this, it may require multiple tool bars with the injection tools staggered. This will help prevent build up of trash and aid in the soil sealing. For example, apply Sectagon-K54 through injectors placed 4 inches below the soil surface and 5 inches apart.

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

Apply Sectagon-K54 at the rate of 30 to 62 gallons of product per treated acre (or see crop-specific considerations in the Additional Information section of this label). Follow immediately with a roller to smooth and compact the soil surface. Light watering or tarping after rolling helps prevent fumigant escape. It may be necessary to stagger the injector placement on two or more tool bars to prevent soil build up during application.

When setting up your soil injection equipment with either spray blades, injection knives or coulters make sure they are evenly and closely placed to create an even application width and depth. To accomplish this, it may require multiple tool bars with the injection tools staggered. This will help prevent build up of trash and aid in the soil sealing. For example, apply Sectagon-K54 through injectors placed 4 inches below the soil surface and 5 inches apart.

Rotary Tiller Applications

Apply Sectagon-K54 as a broadcast application immediately in front of soil covering equipment such as bed shapers, rotary tillers, discs, etc. to a minimum depth of 6 inches using a single pass to incorporate. Use 30 to 63.9 gallons of Sectagon-K54 per treated acre (or see crop-

specific considerations in the Additional Information section of this label) followed immediately by a roller/packer to smooth and compact the soil surface.

Spray Sectagon-K54 immediately in front of the tiller or mulcher, set to the depth to where control is desired (minimum of 6 inches). Use 30 to 62 gallons per treated acre (or see crop-specific considerations in the Additional Information section of this label). Follow immediately with a roller, power roller or bed shaper to seal soil surface. Light watering or a tarp after rolling may be used to help prevent fumigant escape.

Center Pivot and Lateral Move Applications
Use only those systems which give large water droplets to prevent excessive loss. Use 30 to 63.9 gallons of Sectagon-K54 per treated acre (or see crop-specific considerations in the Additional Information section of this label). Meter continuously throughout the injection period all of the Sectagon-K54 required to come in contact with the targeted pest in the treated zone. The desired depth of treatment obtained may be contingent upon soil moisture and type. Soil conditions must facilitate even moisture penetration without runoff. Flush lines following injection of Sectagon-K54. For proper application rate and placement, consult your local Sectagon-K54 Sales Representative or County Extension Expert.

Solid Set Sprinkler Applications
Use only those systems which give large water droplets to prevent excessive loss. Use 30 to 62 gallons of Sectagon-K54 per treated acre (or see crop-specific considerations in the Additional Information section of this label). Meter continuously throughout the injection period all of the Sectagon-K54 required to come in contact with the targeted pest in the treated zone. The desired depth of treatment obtained may be contingent upon soil moisture and type. Soil conditions must facilitate even moisture penetration without runoff. Flush lines following injection of Sectagon-K54. For proper application rate and placement, consult your local Sectagon-K54 Sales Representative or County Extension Expert.

Drip Applications
Sectagon-K54 must be applied through a drip irrigation system designed to wet the soil thoroughly in the area being treated. Meter 30 to 63.9 gallons Sectagon-K54 per treated acre (or see crop-specific considerations in the Additional Information section of this label) into the drip system during the entire irrigation period. Flush irrigation system with adequate water after completion of application.

Important: WEED ELIMINATION WILL NOT BE SATISFACTORY IF TOO MUCH WATER IS APPLIED. AN ADEQUATE CONCENTRATION OF SECTAGON-K54 MUST BE PRESENT AT THE TIME OF WEED SEED GERMINATION IN ORDER TO BE EFFECTIVE.

NOTE: If Sectagon-K54 is applied to established plant beds under plastic tarps to terminate growth of a previous crop and to fumigate the bed in preparation of planting a subsequent crop, the terminated crop must not be used for any food or feed purposes after Sectagon-K54 has been applied.

Flood Basin, Furrow and Border Application
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 APPL Y INTO ANY LATERAL DITCHES.
Meter Sectagon-K54 at a steady rate into water during irrigation. Depending on the kind of pest and the treatment depth, use 30-62 gallons per treated acre in 3 to 18 inches of water per acre. Meter Sectagon-K54 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.

Application Over Cover Crops: Sectagon-K54 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 Sectago-K54 has been applied.

Prevention of Treatment Runoff: To prevent runoff of the treatment during a sprinkler application (including center pivot, lateral move, end tow, side (wheel) roll, solid set or hand move), do not apply Sectagon-K54 at a rate greater than the absorption capacity of the field. Should runoff occur, isolate it from growing crops and water sources. Once collected, reapply to the treated field.

PACIFIC NORTHWEST ONLY

SOIL INJECTION: Sectagon-K54 may be applied using (1) a single shank spaced no more than 6 inches apart and a spray nozzle 6 inches deep; (2) a single shank spaced no more than 6 inches apart and spray nozzles spaced 6 to 12 inches deep; (3) a single sweep spaced no more than 12 inches apart and sweep blades 12 inches wide with a spray nozzle that will give broadcast coverage from sweep tip to sweep tip; (4) a doublewinged shank spaced no more than 12 inches apart and 9 inches between the wings with spray nozzles giving uniform coverage; (5) a Noble Plow Blade with spray nozzles spaced every 6 inches and set to 12 to 14 inches deep using a disc to immediately incorporate he Sectagon-K54 placed on the surface. All soil injection applications must be followed immediately with a roller/packer to smooth and compact the soil surface. Regardless of which method used, you must use 30 to 63.9 gallons of Sectagon-K54 per treated acre (or see crop-specific considerations in the Additional Information section of this label). When applying Sectagon-K54 with injector blades such as Noble Plow Blades in spring, the following precautions must be followed:

- Apply all fertilizers after the Sectagon-K54 application, Wait a minimum of 7 days before making the application.
- Thoroughly aerate the soils to 7 days after the Sectagon-K54 application by plowing, shallow ripping or discing, or the combination thereof to allow the fumes to dissipate. Do not work soil deeper than the depth of treatment.
- If soil temperatures are below 60°F, delay planting for a minimum of 21 days from the day of the Sectagon-K54 application, regardless of any other precautions that may have been taken.
- In conjunction with the delayed planting, set indicator plants (such as tomatoes) in various places in the treated field with a "hot cap" left undisturbed for a minimum of 24 hours to ensure all of the Sectagon-K54 has left the soil. (See "Testing of Treated Soil Before Planting" section.)

FIELD APPLICATION TO BEDS OR ROWS

SOIL INJECTION (Pre-formed Beds): Sectagon-K54 may be injected into preformed plant beds following the directions in the "Soil Injection" section above. If a wider treated band is desired, space 2 or more shanks at intervals of 5 inches to cover the desired treating width. Use thin injection shanks and inject Sectagon-K54 4 inches deep 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. Light watering or a tarp after rolling may be used to help prevent fumigant escape. Apply at the rate of 30 to 63.9 gallons of product per treated acre (or see crop-specific considerations in the Additional Information section of this label) (see "Method of Determining Fluid Ounces per 100 Feet of Linear Row" section). Place shanks 5 inches apart to cover the desired treating width.

SOIL INJECTION (At Bed Forming Operation): Sectagon-K54 may be injected during the bedding or row building process, or to pre-formed beds, using one of the following delivery systems: (1) single narrow knife blade (2) a series of harrow knife blades set no more than 5 inches apart, (3) a spray blade, (4) tiered shanks, (5) spray rake or (6) similar equipment that places Sectagon-K54 in contact with the pest to be controlled or suppressed. The use rate for the above operations is 30 to 63.9 gallons per treated acre (or see crop-specific considerations in the Additional Information section of this label). Reduced rates will vary depending upon the actual width of the treated band desired (see "Method of Determining Fluid Ounces per 100 Feet of Linear Row" section). Apply the Sectagon-K54 at the desired depth in the soil and follow immediately with the soil

capping operation, bedding process, or roller/packer to seal the fumigant into the soil.

SOIL COVERING METHOD (Bed-Over Methods): Sectagon-K54 may be sprayed in a bed wide band onto the soil immediately ahead of bed shaping equipment. Cover the Sectagon-K54 with soil to a depth of 3 to 6 inches. The soil should be rolled and compacted immediately. Apply at the rate of 30 to 63.9 gallons of product per acre (or see crop-specific considerations in the Additional Information section of this label) of treated soil 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).

DRENCH APPLICATION ON BEDS OR ROWS: Sectagon-K54 may be applied to finished beds for control of shallow seeded weeds. Cultivate the area to be treated and pre-irrigate in accordance with Use Directions. Apply 30 to 63.9 gallons of Sectagon-K54 per treated acre (or see crop-specific considerations in the Additional Information section of this label) in a band or bands in enough water to soak at least 2 inches deep (see "Method of Determining Fluid Ounces per 100 Feet of Linear Row" section). To avoid contamination by untreated soil, do not disturb the treated area.

ROTARY TILLER or POWER MULCHER: Spray Sectagon-K54 immediately in front of the tiller or mulcher, set to the depth to where control is desired. Use 30 to 63.9 gallons of product per treated acre (or see crop-specific considerations in the Additional Information section of this label) (see "Method of Determining Fluid Ounces per 100 Feet of Linear Row" section). Follow immediately with a roller, power roller or bedshaper to seal soil surface. Light watering or a tarp after rolling may be used to help prevent fumigant escape.

Method of Determining Fluid Ounces per 100 Feet of Linear Row

1. Determine width of treated band in feet by dividing width of band in inches by 12 (e.g.: 8 in. band = 8 in. ÷ 12 in/ft. = 0.666 ft).
2. Determine square feet in 100 linear feet of band by multiplying the width of the band by 100 (e.g.: 0.666 ft. x 100 ft. = 66.66 sq. ft.)
3. Determine the treated acres per 100 linear feet of band by dividing the square feet by 43,560 (square feet in an acre) (e.g.: 66.66 sq. ft. ÷ 43,560 = 0.0015)
4. To determine the fluid ounces per 100 linear feet.
   a) 1 gal = 128 fl. oz; 50 gals = 6400 fl. oz.; 100 gals = 12,800 fl. oz.
   b) Multiply fluid ounces by acres. Example: 50 gals. = 6400 fl. oz. x 0.0015 = 9.6 fl. oz. per 100 linear feet row.

ADDITIONAL USE INSTRUCTIONS

SEED TREATMENT: A suitable fungicide should be used to treat all crop seed being planted into the treated soil.

PEANUTS: For suppression and/or control of Cylindrocladium Black Rot (CBR) and nematodes, apply Sectagon-K54 at the rate of 6 gallons per treated acre (5.3 fluid ounces per 100 linear feet of row). Use with partially resistant cultivators (NC-1OC or others as designated by your local Agricultural Extension Service) in cases of severe disease pressure. Plant other varieties only in cases of light CBR pressure.

Soil Preparations: Before applying Sectagon-K54, all residues from the previous crop should be decomposed (enhance by fall discing) and plowed under in the spring with a moldboard plow. Soil incorporated pre-plant herbicides must be applied prior to the application of Sectagon-K54.

Application: Apply 8 to 10 inches below seed placement with injector shank or coulter type applicator placed in front of a bedshaper to mark rows. Soil temperatures must be in the range of 60°F to 90°F at a 3 inch depth at time of treatment.

Tillage and Planting after Application: Do not mix untreated soil with treated soil by tillage or other cultural practices. Plant the peanuts in the center of the treated beds no earlier than 14 days following the application of Sectagon-K54.

An at-planting nematocide treatment will be necessary in fields with heavy infestations of Root Knot, ring and/or sting nematodes.

MINT (SUPPRESSION OF VERTICILLIUM WILT): When infestation is limited to small spots in a field, the spread of Verticillium can be reduced by treating the infected spots. Apply at the rate of up to 63.9 gallons of Sectagon-K54 per treated acre using injector blade or thin shank injector rig. Follow directions for "Field Application Where Entire Area Is Being Treated".

POTATOES: For suppression of potato pests such as nematodes, weed seeds and Verticillium dahliae (Early Maturity Disease).
For soil injection, apply a minimum of 30 gallons per treated acre of Sectagon-K54 following the directions for "Field Application Where Entire Area Is Treated". Sectagon-K54 may also be applied at the rate of 40 to 63.9 gallons of product per treated acre using a Noble Plow Blade set to 12 to 14 inches deep with spray nozzles spaced every 6 inches apart to give uniform coverage, plus a surface application using a disc to immediately incorporate the Sectagon-K54 placed on the surface.

Early Maturity Diseases Of Potatoes In The Pacific Northwest: Apply 40 gallons Sectagon-K54 per treated acre using the soil injection method as described in the "Field Application Where Entire Area Is Being Treated" section.

TREATMENT OF TREE REPLANT SITES IN COMMERCIAL ORCHARDS
After removing dead or diseased trees and as much of the root system as possible, make a shallow basin over the planting site. Application with handheld equipment is prohibited. Use 20 fl. oz. of Sectagon-K54 per 100 sq. ft. in sufficient water (depending on the soil type) to penetrate at least 6 ft. For control of Oak Root Fungus, use a basin of at least 20-ft. x 20-ft.; increase dosage to 26-40 fl. oz of product per 100 sq. ft in sufficient water to penetrate to the depth of the root system. If water is tanked to the planting site, add Sectagon-K54 to the water and mix before filling the basin.

ESTABLISHMENT OF TRANSPLANT ORCHARDS AND VINEYARD
Apply 40 to 63.9 gallons of Sectagon-K54 per broadcast acre to properly prepared fields by chemigation in sufficient water (e.g. 3 to 18 acre inches) to place the Sectagon-K54 in contact with the target pest in the treated zone and to penetrate the desired root zone (to 6') of the crop to be transplanted. The percent available water capacity of the soil prior to irrigation will help determine the amount of water to use to penetrate the desired zone. A lethal concentration of Sectagon-K54 must be present while the target species is actively respiring. Sectagon-K54 should be placed at or slightly below the soil level of the target pest. Deep-soil ripping is recommended prior to treatment.

SYMPHYLID SUPPRESSION: Soil should be in good seedbed condition to a depth of 8 to 10 inches. Maintain adequate moisture during the spring season to bring symphylids to the upper soil surface. Treat during July to August when symphylids are in the upper soil surface. Apply a minimum of 15 gallons of Sectagon-K54 per treated acre (0.3 pints per 100 square feet of treated soil) using blade or thin blade chisel injectors spaced 5 inches apart. Inject below the level of symphylid concentration, usually 6 to 8 inches. Pack soil immediately after the application.

TOBACCO PLANT BEDS
Fall applications are recommended whenever possible. Read and follow the use directions carefully.

Drench Method: Apply 1.5 gallons Sectagon-K54 in 150 to 200 gallons of water per 100 square yards. Application may be made with sprinklers, sprayers with nozzles or any suitable equipment. Follow directions given above for "Field Applications Where Entire Area is Being Treated" section. Do not apply more than 63.9 gallons of Sectagon-K54 per acre.

TANK MIX WITH TILLAM® 6E HERBICIDE (TOMATOES ONLY): A tank mix of Sectagon-K54 soil fumigant plus TILLAM® 6E herbicide may be used to provide the additional benefit of residual weed control. The mixture must be

applied pre-plant to tomatoes if all directions and precautions pertaining to both Sectagon-K54 and TILLAM® 6E are followed. Apply through a spray blade, by shank injection, low pressure boom sprayer or (Western Region only) through solid set sprinkler systems. Maintain constant agitation of the mixture throughout the filling and application. Use in accordance with the more restrictive of label limitations and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing. Do not tank mix with other chemicals unless prior use has proven compatibility.

PACIFIC NORTHWEST (IDAHO, NEVADA, OREGON AND WASHINGTON)

CARROTS: Apply a broadcast application of 30 to 63.9 gallons per treated acre of Sectagon-K54 for the suppression of Root Knot Nematodes or 30 to 63.9 gallons for preplant suppression of soil-borne diseases.

MINT (including Peppermint and Spearmint): Apply a pre-plant broadcast application of 30 to 63.9 gallons per treated acre of Sectagon-K54 for the suppression of Root Knot Nematodes and *Verticillium dahliae*.

ONIONS: Apply a broadcast or banded application of 30 to 63.9 gallons per treated acre of Sectagon-K54 for the suppression of Root Knot Nematodes or 30 to 63.9 gallons for suppression of soil-borne diseases.

POTATOES: Apply broadcast sprinkler application of 30 to 63.9 gallons per treated acre of Sectagon-K54 for the suppression of Root Knot Nematodes and *Verticillium dahliae*. Apply a broadcast soil application of 30 to 63.9 gallons per treated acre Sectagon-K54 for the suppression of *Verticillium dahliae*.

SUGAR BEETS: Apply broadcast or a banded application of 30 to 63.9 gallons per treated acre Sectagon-K54 for the suppression of soil-borne disease. A fall application of RO-NEET® herbicide followed by or tank mixed with Sectagon-K54 in a broadcast application or band application will enhance the overall weed control.

ORCHARD RE-PLANT: Apply a broadcast application rate of 56 to 63.9 gallons per treated acre of Sectagon-K54 in a minimum of 1-acre inch of water through a sprinkler system, or a row treatment of 56 to 63.9 gallons broadcast equivalent, to the future tree row using a weed sprayer (see *Terms used in this labeling* section) by applying multiple passes of Sectagon-K54 while the sprinklers are running until the desired rate has been applied for the treatment of specific orchard replant disease. Trees should not be replanted into the replant site for at least 21 days after the application is complete. Check for fumes in the soil before planting. Sectagon-K54 may also be applied at the rate of 40 to 63.9 gallons of product per treated acre using a Noble Plow Blade set 12 to 14 inches deep with spray nozzles spaced every 6 inches apart to give uniform coverage, with a surface application using a disc to immediately incorporate the Sectagon-K54 placed on the surface.

WHEAT AND BARLEY: Apply Sectagon-K54 at a rate of 1.5 to 6 gallons of product per treated acre 14 to 21 days prior to planting for the suppression of certain early season soil fungi which cause root diseases of small grains. Sectagon-K54 may be diluted with water or, if compatible, non-acidic liquid fertilizers (see "Application in Tank Mix with Liquid Fertilizer" section) and injected into moist soils to 8 inches before planting.

IN THE PACIFIC NORTHWEST, IF THE FIELD HISTORY OR SOIL SAMPLING SHOWS HIGH POPULATIONS OF NEMATODES, FUMIGATION USING BOTH Sectagon-K54 AND TELONE® II SHOULD BE USED. CONSULT YOUR TESSENDERLO KERLEY, INC. OR DOW AGROSCIENCES REPRESENTATIVE FOR ADDITIONAL INFORMATION.

USE DIRECTIONS FOR SEQUENTIAL GROUND APPLICATION OF TELONE® II AND SECTAGON-K54

NOTE: Read the label affixed to the container of TELONE® II before applying. Carefully follow all precautionary statements and applicable use directions. Observe the most restrictive

precautions and limitations for both products and do not exceed the maximum labeled rates for either product.

Sequential application of TELONE® II and Sectagon-K54 for suppression of *Verticillium dahliae* and control of Root Knot and Lesion nematodes in soils to be planted to potatoes in the Pacific Northwest.

The following use directions provide information for a sequential treatment program of applications of TELONE® II soil fumigant and Sectagon-K54 soil fumigant. For best results, apply both TELONE® II and Sectagon-K54 in the fall. Alternative treatment schedules include a fall application of TELONE® II followed by a spring application of Sectagon-K54, a fall application of Sectagon-K54 followed by a spring application of TELONE® II, or a spring application of both products. Due to time constraints resulting from varying weather conditions, a spring application may result in delayed planting.

APPLICATION DIRECTIONS FOR TELONE® II

Soil Conditions

Soil conditions at the time of application of TELONE® II that allow rapid diffusion of the fumigant as a gas through the soil normally give best results. Compacted soil layers within the desired treatment zone must be fractured before or during application of the fumigant. Soil temperature must be between 40° to 80°F at the depth of injection, moist from 2 inches below the soil surface to at least 12 inches deep, as determined by the feel method, free of clods, and with crop residue thoroughly incorporated into the soil at least at the time of application and sealing.

Application Methods and Equipment

Apply TELONE® II as a broadcast treatment at the minimum rate of 15 gallons per treated acre (44.3 fl. oz/1000 feet of row/outlet based on 12 inch centers) using either chisel (shank), Noble Plow (sweep) or modified Para Till application equipment. Chisel equipment must have ripper-type shanks. Para Till equipment must be modified so that outlet spacing is evenly distributed under the tool bar. With chisel and Para Till equipment, a shank spacing of 12 to 24 inches is recommended. Do not exceed a shank spacing of 24 inches. Outlet depth should be at least 18 inches below the final soil surface. Noble Plow equipment may be used only when either shallow soils (those less that 18 inches deep) or soils containing excessive live root material such as alfalfa or corn stubble prevents the use of shank application. Noble Plow outlet spacing should not exceed 12 inches and application should be made to a depth of at least 15 inches. Fumigant penetration may be limited if a plow pan exists below the depth of the Noble blade. Do not use plow-sole application. Immediately after application of TELONE® II, use a disc, paddle wheel or similar device to uniformly mix the top 4-6 inches of soil to effectively eliminate chisel traces. Then follow immediately with a ring roller or multi-packer to seal the soil surface. Little or no crop residue should be exposed at the surface following the sealing operation. Any remaining crop residue should lie flat following sealing. Following application and sealing, leave soil undisturbed for 7-14 days. The longer undisturbed interval may be necessary if the soil is or becomes cold or wet during this period.

APPLICATION DIRECTIONS FOR SECTAGON-K54

Soil Conditions

Soil conditions at the time of application of Sectagon-K54 must be between 35° and 90°F in the treated zone and at 60 to 80% available water capacity. If necessary, pre-irrigate about a week prior to treatment to adjust soil moisture to desired levels. Immediately before application, cultivate lightly if the soil has crusted.

Application Methods and Equipment

Apply Sectagon-K54 either by chemigation or by soil injection or surface incorporation as a sequential application with TELONE® II. When Sectagon-K54 is used prior to TELONE® II, allow a minimum of 7 days between treatments. When TELONE® II is applied prior to Sectagon-K54, allow a minimum of 7 days before disturbing the soil or beginning any pre-irrigation for the application of Sectagon-K54.

For Chemigation: Apply Sectagon-K54 at the minimum rate of 30 gallons per treated acre in a minimum of 0.5 acre-inch of water to the desired depth of treatment. Heavier soils may require a higher amount of water. Use only those sprinkler systems that give large water droplets to prevent excessive fumigant loss. If for any reason chemigation is interrupted prior to completion (e.g., excessive wind, equipment malfunction, etc.), back the system up prior to restarting to ensure full application to the area affected prior to shutting down the system and to allow full distribution of the Sectagon-K54 solution throughout the irrigation system prior to moving over untreated soil. After application is completed, flush equipment until all Sectagon-K54 is eliminated from the system. Follow all application directions described in the "CHEMIGATION OF SECTAGON-K54" sections).

For Soil Injection: Apply Sectagon-K54 at the minimum rate of 30 gallons per treated acre using either shanks, sweep blades, double-winged shanks, or a Noble Plow Blade combined with a surface application. Single shanks should be spaced no more than 6 inches apart with either single injection outlets no more than 6 inches deep or dual injection outlets spaced at 6 and 12 inches deep. Single sweep blades should be spaced no more than 12 inches apart with sweeps 12 inches wide and a spray nozzle that will provide broadcast coverage from sweep tip to sweep tip. Double-winged shanks should be spaced no more than 12 inches apart with no more than 9 inches between adjacent wings and with spray nozzles that provide uniform coverage. The Noble Plow blade should have spray nozzles spaced 6 inches apart to give uniform coverage, an injection depth set at 12 to 14 inches deep, and be combined with a surface application using a disc to immediately incorporate the Sectagon-K54 placed on the surface. Follow all the above applications immediately with a roller/packer to smooth and compact the soil surface.

For Surface Incorporation: Apply Sectagon-K54 at the minimum rate of 30 gallons per treated acre as a broadcast application to the soil surface immediately in front of soil covering equipment such as rotary tillers, discs, etc., to a minimum depth of 6 inches using a single-pass incorporation, followed immediately by a roller/packer to smooth and compact the soil surface.

SOIL FUMIGATION INTERVAL: Planting may take place only after odors of either TELONE® II or Sectagon-K54 are no longer present within the zone of fumigation. If Sectagon-K54 follows TELONE® II and is applied in the spring with the Noble Plow Blade, apply all fertilizers at least 7 days after the application of Sectagon-K54. Thoroughly aerate the soils to 7 days after the application of Sectagon-K54 by shallow plowing and/or discing to allow the fumigant odors to dissipate. Wait 14 to 21 days after the application of Sectagon-K54 before planting the crop. Use the 21-day interval if soil temperatures are below 60°F regardless of any other precautions that may have been taken. In addition to waiting 21 days, set indicator plants (e.g., tomato seedlings) in various places in the treated field and cover the plants with a "hot cap", plastic sheeting, bucket, etc., to trap and confine any fumes present. Leave the plants undisturbed for a minimum of 24 hours, then examine for injury before planting the crop. Do not plant the crop if injury to indicator plants is observed. If fumes are noticeable at time of planting, stop planting and rework the soil. If TELONE® II follows Sectagon-K54 and is applied in the spring, wait at least one week for each 10 gallons of TELONE® II applied beyond the initial undisturbed period before planting the crop. If fumigant odors are present at planting, thoroughly aerate the soil following shallow ripping and/or discing to allow fumigant odors to dissipate. Do not till the soil so deep as to move untreated soil from below the treated zone into the treated soil.

Special Considerations and Precautions:

- Use of this sequential application program of reduced rates of TELONE® II and Sectagon-K54 does not guarantee pest-free potatoes at harvest.
- Use of TELONE® II and Sectagon-K54 according to these use directions will control Root Knot and Lesion nematode populations present within the fumigated zone at the time of fumigation. The fumigated zone can vary depending upon

a number of factors such as fumigant rate, application methods used, depth of fumigant application, soil moisture, soil type, soil temperature and soil tilth (including soil compaction and soil porosity). The sequential combination of reduced rates of TELONE® II and Sectagon-K54 will not control or prevent re-infestation subsequent to the treatments. Subsequent pest populations may infest the fumigated zone from irrigation water, equipment, potato seed or other sources of contamination or may invade the fumigated zone from surrounding untreated soil such as from beneath the fumigated zone or from non-fumigated pockets within the fumigated zone.

- In fields with a history of severe Columbia Root Knot nematode problems, the maximum Federal label rate of 20 gallons TELONE® II per treated acre is recommended in sequential combination with a minimum of 30 gallons Sectagon-K54 per treated acre per these label directions.
- If the application of TELONE® II occurs in the fall and the application of Sectagon-K54 is not planned until spring, a cover crop such as wheat or grass can be planted following the undisturbed soil interval associated with the application of TELONE® II to reduce the potential for over-winter soil erosion. Refer to the product labels affixed to the containers for both TELONE® II and Sectagon-K54 for recommended soil conditions; product performance can be expected to improve as the soil conditions move toward optimum. Use of this sequential application program of TELONE® II and Sectagon-K54 under soil conditions outside the recommended range of soil conditions can be expected to yield less than satisfactory performance.

USE DIRECTIONS FOR SIMULTANEOUS GROUND APPLICATION OF TELONE® II AND SECTAGON-K54

Simultaneous application of TELONE® II and Sectagon-K54 for suppression of *Verticillium dahliae* and control of Root Knot and Lesion nematodes in soils to be planted to potatoes in the Pacific Northwest.

The following use directions provide information for simultaneous ground application of TELONE® II soil fumigant and Sectagon-K54 soil fumigant. For best results, a fall application is recommended. Due to time constraints resulting from varying weather conditions, a spring application may result in delayed planting.

NOTE: When TELONE® II and Sectagon-K54 are applied simultaneously, the most restrictive personal protective equipment, buffer zones, worker notification and entry restrictions specified on labels for each product must be followed. Observe the most restrictive precautions and limitations for both products and do not exceed the maximum labeled rates for either product.

Soil Conditions

Soil temperature must be between 40° and 80°F in the treated zone.

Application Methods and Equipment

Use a dual equipment setup to apply TELONE® II and Sectagon-K54 during a single pass. Calibrate equipment for simultaneous application of each product. Because of shallower product placement and the need to disrupt chisel traces from application of TELONE® II, mount equipment for application of Sectagon-K54 behind that of TELONE® II.

Apply TELONE® II as a broadcast treatment at a minimum rate of 15 gallons of product per treated acre (44.3 fl. oz/1000 feet of row/outlet based on 12 inch centers) using either chisel (shank), noble (sweep) or modified Para Till application equipment. Chisel equipment must have ripper-type shanks. Para Till equipment must be modified so that outlet spacing is evenly distributed under the tool bar. With chisel and Para Till equipment, a shank spacing of 12 to 24 inches is recommended. Do not exceed a shank spacing of 24 inches. Outlet depth should be at least 18 inches below the final soil surface. Noble Plow outlet spacing should not exceed 12 inches and application should be made to a depth of at least 15 inches. Fumigant

penetration may be limited if a plow pan exists below the depth of the Noble blade. Do not use plow sole application.

For Soil Injection: Apply Sectagon-K54 as broadcast treatment at a minimum rate of 30 gallons of product per treated acre using either shanks, sweep blades or double-winged shanks. Single shanks should be spaced no more than 6 inches apart with either single injection outlets any more than 6 inches deep or dual injection outlets spaced at 6 and 12 inches deep. Single sweep blades should be spaced no more than 12 inches apart with sweeps 12 inches wide and a spray nozzle that will provide broadcast coverage from sweep tip to sweep tip. Double-winged shanks should be spaced no more than 12 inches apart with no more than 9 inches between adjacent wings and with spray nozzles that provide uniform coverage.

For Surface Incorporation: Apply Sectagon-K54 at the minimum rate of 30 gallons of product per treated acre as a broadcast application to the soil surface immediately in front of soil covering equipment such as rotary tillers, discs, etc., set to a minimum depth of 6 inches.

Sealing the Soil after Application

Immediately after application the soil must be sealed to prevent fumigant loss and ensure that an effective concentration of fumigant is maintained within the soil. Chisel traces resulting from the TELONE® II application must be disrupted to a depth of at least 4 to 6 inches. This may be accomplished with the Sectagon-K54 applicator or with a disc or similar device. As a final step to compact the soil surface and help maximize soil sealing, all above applications must be followed with a ring roller or culti-packer.

Soil Fumigation Interval

Planting may take place only after the odors of both TELONE® II and Sectagon-K54 are no longer present. Following application and sealing, leave the soil undisturbed for 7 to 10 days. The longer undisturbed interval may be necessary if the soil is or becomes cold or wet during this period. For spring applications, thoroughly aerate the soil after the initial undisturbed interval by shallow plowing and/or discing to allow the fumigant odors to dissipate. Allow 21 days prior to planting. In addition to waiting 21 days, place indicator plants (e.g., potted tomato seedlings) in various places in the treated field and cover the plants with a "hot cap", plastic sheeting, bucket, etc., to trap and confine any fumes present. Leave the plants undisturbed for a minimum of 24 hours, then examine for injury before planting the crop. Do not plant the crop if injury to indicator plants is observed. If fumes are noticeable at time of planting, stop planting and rework the soil.

Special Considerations and Precautions:

Use of this simultaneous application program of reduced rates of TELONE® II and Sectagon-K54 does not guarantee pest-free potatoes at harvest. Use of TELONE® II and Sectagon-K54 according to these use directions will control Root Knot and Lesion nematode populations present within the fumigated zone at the time of fumigation. The fumigated zone can vary depending upon a number of factors such as fumigant rate, application methods used, depth of fumigant application, soil moisture, soil type, soil temperature and soil tilth (including soil compaction and soil porosity). The simultaneous combination of reduced rates of TELONE® II and Sectagon-K54 will not control or prevent re-infestation subsequent to the treatment. Subsequent pest populations may infest the fumigated zone from irrigation water, equipment, potato seed or other sources of contamination, or may invade the fumigated zone from surrounding untreated soil such as from beneath the fumigated zone or from within non-fumigated pockets within the fumigated zone. In fields with a history of severe Columbia Root Knot nematode problems, the maximum Federal label rate of 20 gallons of TELONE® II per treated acre is recommended in simultaneous combination with a minimum of 30 gallons of Sectagon-K54 per treated acre, per these label directions. With fall applications, a cover crop such as wheat or grass may be planted following the undisturbed soil interval associated with this application to reduce the potential for over-winter soil erosion. Refer to the product labels affixed to the containers for both TELONE® II and Sectagon-K54 for further recommendations and precautions for optimum fumigant performance. Within the range of recommended

soil conditions, product performance can be expected to improve as the soil conditions move towards optimum. Use of this simultaneous application program of TELONE® II and Sectagon-K54 under soil conditions outside the recommended range of soil conditions can be expected to yield less than satisfactory performance.

NOTE: The "Use Directions for the Pacific Northwest" may be used in other areas of the country, if not prohibited elsewhere on the label. Consult your local Sales Representative or extension personnel for further directions or recommendations.

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. Avoid freezing by storing above 5° F as product crystallizes at lower temperatures. If product crystallizes, move to a warmer location, then thoroughly shake or stir product until crystals are redissolved. Do not use this product until crystals are redissolved.

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 instructions, 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 CONTAINER]

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.

[FOR BULK AND MINI-BULK CONTAINERS]

CONTAINER DISPOSAL: Reseal container and offer for recycling or reconditioning; triple rinse (or equivalent); or clean in accordance with manufacturer's instructions.

CONTAINER PRECAUTIONS: Before refilling, inspect thoroughly for damage such as cracks, punctures, bulges, dents, abrasions and damage or worn threads on closure devices.

REFILL ONLY WITH Sectagon-K54 SOIL FUMIGANT

The contents of this container cannot be completely removed by cleaning. Refilling with materials other than Sectagon-K54 soil fumigant will result in contamination and may weaken the container. After filling and before transporting, check for leaks. Do not refill or transport damaged or leaking container.

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

For transportation emergencies, phone 24 hours a day: CHEMTREC 1-800-424-9300

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LIMITED WARRANTY AND DISCLAIMER

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.

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