2019-0261
2019-05-01

Container

BUSAN 1180

solution

REGISTRATION NO. : 25124
PEST CONTROL PRODUCTS ACT

NET CONTENTS: L

ACTIVE INGREDIENT(S):

Metam Potassium 54%

DANGER - POISON
DANGER - CORROSIVE TO EYES
DANGER - SKIN IRRITANT
POTENTIAL SKIN SENSITIZER

Buckman Laboratories of Canada, Ltd.
351 Joseph-Carrier Street, Vaudreuil-Dorion, Quebec J7V 5V5

24-HOUR EMERGENCY TELEPHONE NUMBER:
Chemtrec 703-741-5970

RESTRICTED PRODUCT
THIS PRODUCT CAN ONLY BE USED IN CONJUNCTION WITH A DETAILED FUMIGATION MANAGEMENT PLAN.

READ THE ENTIRE LABEL, INCLUDING INSTRUCTIONS FOR PREPARATION OF A FUMIGATION MANAGEMENT PLAN, BEFORE USING.

NATURE OF RESTRICTION

This product is only to be sold to and used by individuals holding an appropriate pesticide applicator certificate or licence recognized by the provincial/territorial pesticide regulatory agency where the pesticide application is to occur. This restriction applies to all fumigant handlers, as defined in the DIRECTIONS FOR USE - **HANDLER RESTRICTIONS** section of this label.

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This product can only be used in conjunction with a detailed Fumigation Management Plan. Prior to the start of application, the applicator must verify that a site-specific Fumigation Management Plan exists for each application block.

This product is accompanied by an approved label, including Instructions for Preparation of a Fumigation Management Plan. READ AND UNDERSTAND THE ENTIRE LABEL BEFORE USING.

PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN

Fatal or Poisonous if swallowed or absorbed through the skin. DO NOT get on skin or on clothing. Harmful if inhaled. Avoid inhaling/breathing vapour or sprays. CORROSIVE to the eye and to skin. DO NOT get in eyes or on skin. Potential skin sensitizer.

Causes severe eye and skin irritation. Harmful if swallowed. Do not get in eyes on skin or on clothing. Do not take internally. Keep children and pets out of treated area. Keep off desirable lawns and plants. Do not apply within 1 metre of the drip line of desirable plants shrubs or trees. Do not use in confined areas without adequate ventilation OR where fumes may enter nearby houses containing growing plants. Do not use in greenhouses where desirable plants are present. Keep container tightly closed when not in use.
If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at: www.croplife.ca.

Handler Use Precautions:

Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

Remove clothing immediately if pesticide comes in contact with skin through soaked clothing or spills. Then wash skin thoroughly and put on clean clothing. Wash contaminated clothing separately from other clothes before reuse.

Store personal protective equipment out of reach of children and pets.

Avoid touching 'clean' surfaces while wearing personal protective equipment (for example: steering wheel, door handles, counter tops), or thoroughly clean these surfaces afterwards with water and detergent.

Remove personal protective equipment immediately after handling this product. Remove personal protective equipment outside in a pre-determined area separate from living or working areas.

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

Avoid touching eyes and face until you have washed your hands.

Never use the mouth to siphon product from containers or to blow out clogged lines, nozzles, etc.

Respirators should be stored in a sealed plastic bag until the next use, to preserve the life of the filter. Regularly change respirator cartridge filters.

Repair/replace torn or broken personal protective equipment.

Use hot water, heavy-duty liquid detergent, the highest water level setting, and the longest wash cycle. Keep and wash personal protective equipment separately from other laundry.

If heavily soiled, wash personal protective equipment two or three times. After washing, run the washing machine through a complete cycle with detergent. If possible, line-dry the clothing.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them.

Personal Protective Equipment:

All handlers, including those who set-up and calibrate chemigation or irrigation equipment and start the application from inside the application block or buffer zone, must wear at a minimum, a long-sleeved shirt, long pants, shoes, socks, rubber gloves, and protective eyewear (goggles or face shield).

Handlers who may be exposed to liquid spray while repairing or shutting off a malfunctioning chemigation system must wear:

- chemical-resistant coveralls over long-sleeved shirt and long pants,
- chemical-resistant gloves,
- chemical-resistant footwear plus socks,
- chemical-resistant headgear, and
- protective eyewear (goggles or face shield)

Handlers performing any tasks with potential for contact with liquid fumigant (such as, transferring or loading liquid formulations, operating motorized ground equipment with open cabs, applying with hand-held application equipment, repairing or inactivating irrigation or chemigation equipment during application, and cleaning up spills or equipment) must wear:

- coveralls over long-sleeved shirt and long pants,
- chemical-resistant gloves,
- chemical-resistant footwear plus socks,
- a chemical-resistant apron, and
- protective eyewear (goggles or face shield)

Some materials that are chemical-resistant to this product are Buna-N Rubber, EPDM Rubber, and Neoprene. The personal protective equipment must be adequately cleaned and maintained.

In addition, when an air-purifying respirator is required under this label's **DIRECTIONS FOR USE, Respiratory Protection and Stop Work Triggers** section, all fumigant handlers must wear at a minimum either:

- a NIOSH certified full facepiece air-purifying respirator equipped with an organic vapour (OV, NIOSH approval number prefix TC-23C) cartridge and a particulate pre-filter (Type N, R, P or HE,

NIOSH approval number prefix number TC-84A), or
- a gas mask with a canister approved for organic vapour (NIOSH approval number prefix TC-14G).

Respirators must fit properly. Any obstruction to a proper fit should be removed (for example, beard, long sideburns).

All fumigant handlers must have an air-purifying respirator and appropriate cartridges immediately available to them.

FIRST AID: Take container, label, or product name and Pest Control Product Registration Number with you when seeking medical attention.
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 centre or doctor for treatment advice.
If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.
If swallowed: Call a poison control centre 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 a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

TOXICOLOGICAL INFORMATION: Treat symptomatically.

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

The use of this chemical may result in it leaching to groundwater, particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow. While metam potassium has certain properties and characteristics in common with chemicals that have been detected in groundwater (high solubility in water and low adsorption to soil), volatilization of this fumigant is expected to be the major route of dissipation from the treatment site.

STORAGE: Do not stack more than 5 drums high. Drums should be opened in well-ventilated areas. Leaking or damaged drums should be placed in over-pack drums for disposal. Spills should be absorbed in sawdust or sand and disposed of as described in the Disposal section below. Keep containers closed when not in use. Do not reuse container.

To prevent contamination, store this product away from food or feed.

DISPOSAL:
1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.

5. For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency.

SPILL CLEANUP: Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills. Only those people identified under the **Handler Restrictions** section of this label are permitted to enter the affected area to correct a problem and clean-up. Wear the personal protective equipment (including a respirator) specified in the **Personal Protective Clothing and Equipment** section of this label. DO NOT permit entry into the spill area by any persons without appropriate respiratory protection until two consecutive breathing-zone samples taken at least 15 minutes apart show that levels of MITC have decreased to less than 0.6 ppm and no sensory irritation is experienced.

NOTICE TO USER:
This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

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Booklet

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PRODUCT INFORMATION

Busan 1180 is a water soluble liquid. When applied to properly prepared soil, the liquid is converted into a gaseous fumigant. After sufficient interval of time, the gas dissipates, leaving the soil ready for planting. Busan 1180 is recommended for the control of the following soil-borne pests that attack ornamental, food and fibre crops: Weeds and germinating weed seeds [annual bluegrass, Bermuda-grass, chickweed, dandelion, ragweed, henbit, lambsquarters, Amaranthus sp. (pigweed) Johnsongrass, wild morning glory) nematodes, and soil-borne diseases *(Rhizoctonia Pythium, Phytophthora, Verticillium, Sclerotinia* and club root of crucifers).

DIRECTIONS FOR USE

HANDLER RESTRICTIONS:
Any person involved in the use of this product is considered a fumigant handler. All fumigant handlers must hold an appropriate pesticide applicator certificate or license recognized by the provincial/territorial pesticide regulatory agency where the pesticide application is to occur.
Only fumigant handlers with an appropriate pesticide applicator certificate or license may be in the application block from the start of the application until the Application Period expires, and in the buffer zone during the Buffer Zone Period.
Exception: Emergency personnel and local, provincial or federal officials performing inspections, sampling or other similar duties may enter the application block and/or buffer zone as required.

- The application block is the area within the perimeter of the fumigated portion of a field or greenhouse (including furrows, irrigation ditches, roadways).
- A buffer zone is an area established around the perimeter of an application block.
- Application *starts* when the fumigant is first introduced into the soil and is *complete* when the fumigant has stopped being delivered/dispensed into the soil and the soil has been sealed.
- The duration of the Application Block and the Buffer Zone Period is outlined in the **Application Block Period and Notification** and **Buffer Zone Requirements** sections of this label.

In addition, only fumigant handlers can perform tasks with potential for contact with liquid fumigant including:

- cleaning up fumigant spills;
- handling or disposing of fumigant containers, and
- cleaning, handling, adjusting, or repairing the parts of fumigation equipment that contain fumigant residues.

All fumigant handlers, emergency personnel, and local, provincial or federal officials must wear the appropriate personnel protective equipment outlined in the **PRECAUTIONS, Personal Protective Equipment** section of this label.

APPLICATION BLOCK PERIOD AND NOTIFICATION:

Application Block Period

Entry into the application block by any person (other than PPE-equipped handlers, emergency personnel, and local, provincial, or federal officials performing inspection, sampling, or other similar official duties) is PROHIBITED during the Application Block Period.

For all non-tarped applications, the Application Block Period begins at the start of application and expires 5 days after the application is complete.

For all tarped applications, the Application Block Period begins at the start of the application, and expires a minimum of 5 days after application is complete, as specified in Table I.

Table I. Required Application Block Period Following Soil Fumigation

IF	Tarps are not perforated within 14 days after application	**AND**	Tarps are not removed for at least 14 days after application	THE APPLICATION BLOCK PERIOD EXPIRES	5 days after application is
	Tarps are perforated within 14 days after application		Tarps are not removed for at least 14 days after application		48 hours after tarp perforation is complete (minimum 7 days*)
			Tarps are removed within 14 days of application		after tarp perforation and removal is complete (minimum 5 days)

* Unless tarps were perforated or removed earlier than 5 days following application based on weather conditions (see **Tarp Perforation and/or Removal**).

Notification

The applicator must verbally warn workers of the application. Fumigant Application signs must be posted on all entrances to the application block.

Fumigant Application signs must conform to the following requirements:

- The printed side of the sign must face away from the treated area toward areas from which people can approach.
- Signs must be clearly legible during entire posting period. The sign must be at least 35 cm by 25 cm in size, and made of substantial material that can be expected to withstand adverse weather conditions. Letters must be at least 7 cm in height.
- Signs must be posted prior to the start of the application (but no sooner than 24 hours prior to application) and remain posted for the duration of the Application Block Period.
- Signs must be removed within 3 days after the end of the Application Block Period.
- Only a certified handler may remove Fumigant Application signs.
- The signs must contain the following information in ENGLISH and FRENCH:
  - The "skull and crossbones" symbol
  - "DANGER"
  - "Area under fumigation, DO NOT ENTER"
  - "Metam potassium Fumigant in USE"
  - The date and time of fumigation
  - The date and time the Application Block Period is over
  - The name of the product
  - Name, address, and telephone number of the applicator

RESPIRATORY PROTECTION AND STOP WORK TRIGGERS:

The procedures outlined in Table II must be followed to determine whether an air-purifying respirator is required, or if operations must cease.

The respiratory protection and stop work triggers outlined in Table II apply to anyone present in the application block from the start of the application until the Application Block Period expires, or in the buffer zone during the Buffer Zone Period, including emergency personnel, and local, provincial or federal officials.

Table II Respiratory Protection and Stop Work Triggers

1.	If at any time any handler experiences **sensory irritation** (tearing, burning of the eyes or nose), when not wearing a respirator:	Then EITHER: • An air-purifying respirator must be worn by all fumigant handlers who remain in the application block and surrounding buffer zone, and air monitoring samples must be collected **for MITC** at least every 2 hours in the breathing zone of a handler performing a representative handling task. OR • Operations must cease and handlers not wearing an air-purifying respirator must leave the application block and surrounding buffer zone
	Handlers can remove respirators or resume operations provided that:	• Two (2) consecutive breathing-zone samples taken at the handling site at least 15 minutes apart show that levels of **MITC** have decreased to less than 0.6 ppm. Samples must be taken at the location where the irritation is first experienced or where sample(s) were greater or equal to 6 ppm, and • Handlers do not experience sensory irritation.
2.	If at any time any handler experiences **sensory irritation** when wearing a respirator, OR a MITC air sample is greater than or equal to 6 ppm	• Operations must cease and handlers must leave the application block and surrounding buffer zone
	Handlers can resume work activities with air- purifying respirators provided that:	• Two (2) consecutive breathing zone samples **for MITC** taken at least 15 minutes apart are less than 6 ppm at the location where irritation was first experienced, • Handlers do not experience sensory irritation while wearing the air-purifying respirator, • Respirator cartridges/canisters have been changed, and • Air monitoring samples are collected at least every 2 hours in the breathing zone of a handler performing a representative handling task.
	Handlers can resume work activities without air- purifying respirators provided that:	• Two (2) consecutive breathing zone samples **for MITC** taken at the handling site at least 15 minutes apart show levels of **MITC** have decreased to less than 0.6 ppm at the location where the irritation was first experienced, and • Handlers do not experience sensory irritation.

FUMIGANT AIR MONITORING:
When using monitoring devices to monitor air concentration levels, a direct reading detection device, such as a colorimetric device (for example, Matheson-kitagawa, Draeger or Sensidyne) must be used. The devices must have a sensitivity of at least 0.6 ppm for MITC.

When breathing zones samples are required, they must be taken outside respiratory protection equipment and within a 25 cm radius of the handler's nose and mouth.

When air monitoring samples must be collected in the breathing zone of a handler performing a representative task, the locations and handler activities sampled must represent the exposure occurring for each handler present in the application block.

TARP PERFORATION AND/OR REMOVAL:
Tarps must be perforated (cut, punched, poked, or sliced) by mechanical methods, except for the following situations (where tarps can be perforated manually):

- 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 0.4 hectare or less.
- During flood prevention activities.

Tarps must not be perforated or removed until a minimum of 5 days (120 hours) have elapsed after the application is complete, unless a weather condition exists which necessitates early tarp perforation or removal, as follows:

- *Early tarp perforation following bedded applications:* Tarp perforation is allowed before the 5 days (120 hours) have elapsed for flood prevention activities.
- *Early tarp removal following broadcast applications:* 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, for example, tarps blowing into power lines and onto roads. A *compromised tarp* is a tarp that due to an adverse weather condition is no longer performing its intended function and is creating a hazard.

If tarps are 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 not perforated or removed within 14 days after application is complete, planting or transplanting may take place while the tarps are being perforated.

Additional Requirements for Broadcast Applications:

- Each tarp panel must be perforated.
- Tarp perforation must be completed before noon.
- Tarps must not be perforated if rainfall is expected within 12 hours.

MANDATORY GOOD AGRICULTURAL PRACTICES:

The following Good Agricultural Practices must be followed during all fumigant applications. When indicated, additional Good Agricultural Practices must also be followed for the specified application method.

Tarps (when tarps are used)

- A written tarp plan must be developed and included in the Fumigation Management Plan.
- Tarps must be installed immediately after the fumigant is applied to the soil.

- Once a tarp is perforated, the application is no longer considered tarped.
- Tarps must be checked daily for damage, tears, and other problems
- Follow buffer zone tables for tarped applications.

Weather Conditions

The weather forecast must be checked by the applicator:

- on the day of, but prior to the start of the application, and
- if the application takes longer than 24 hours, on a daily basis.

DO NOT apply if light wind conditions (< 3 km/hr) are forecast to persist for more than 18 consecutive hours from the time the application starts until 48 hours after the application is complete.

DO NOT apply when a temperature inversion is occurring, or is predicted to occur within 48 hours after application is complete, as fumigant vapours may drift. Temperature inversions are weather conditions in which warm air sits above and traps cooler air near the Earth's surface. The resulting calm air masses at ground level traps vapour in a confined area and 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. Temperature inversions are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or smog. Their presence can also be identified by smoke from a ground source that flattens out below a ceiling layer and moves laterally in a concentrated cloud.

Apply only when the potential for drift to areas of human habitation or areas of human activity (such as houses, cottages, schools and recreational areas) is minimal. Take into account wind speed, wind direction, temperature, application equipment and sprayer settings.

Wind Speed

- For solid set sprinkler applications: Wind speed at the application site must be a minimum of 3 km per hour at the start of the application or forecasted to reach 8 km per hour during the application. The maximum wind speed is 16 km per hour.
- For central pivot applications: Wind speed at the application site must be a minimum of 3 km per hour at the start of the application or forecasted to reach 8 km per hour during the application.
  - When not using a solid stream type nozzle, OR having a release height or spray height greater than 1.2 metres, OR having 30 lbs or greater PSI at the sprinkler head, the maximum wind speed is 16 km per hour.
  - When using a solid stream, AND having release height and spray height less than 1.2 metres, AND having 29 lbs. or less PSI at the sprinkler head, the maximum wind speed is 40 km per hour.

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. However, crop residue on the field serves to prevent soil erosion from both wind and water. To accommodate erosion control, fumigant efficacy, and human health protection, clear fields of crop residue as close to the start of the application as possible to limit the length of time that

the soil would be exposed to potentially erosive weather conditions.

- *For shank injection:* The injection point for bedded and broadcast shank injection applications shall be a minimum of 8 cm from the final soil/air interface. Chisel traces must be eliminated following an application. Trash pulled by the shanks to the ends of the field must be covered with tarp or soil following application.
- *For rotary tiller:* Apply the product mixture on the soil immediately ahead of the bed-shaping equipment or tiller.
- *For each of these methods:* 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 8 – 15 cm of untreated soil, OR
    - Applying a minimum of 0.6 cm of water beginning immediately after application begins and completing the water treatment within four hours, OR
    - Covering treated area with a tarp.

Soil Temperature

The soil temperature must be between 4°C and 30°C at the beginning of the application. *For shank injection and rotary tiller*, soil temperature is measured at the depth of injection. *For all other applications,* soil temperature is measured at a depth of 8 cm. If air temperatures have been above 37°C in any of the three days prior to application, then soil temperature must be measured and recorded in the Fumigation Management Plan. Record temperature at the application depth or 30 cm, whichever is shallower.

Soil Moisture

The soil moisture in the top 15 cm must be between 60% to 80% of available water capacity immediately prior to the application. If there is insufficient moisture throughout the top 15 cm of soil, the soil moisture must be adjusted. If there is adequate soil moisture below 15 cm, 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.

Soil moisture must be determined by one of the following methods:

- the United States Department of Agriculture (USDA) Feel and Appearance Method for testing (see Table III below), or
- an instrument, such as a tensiometer.

Table III Overview of the USDA Feel and Appearance Method for Estimating Soil Moisture as Appropriate for Fumigant Application

Soil Texture	Soil Properties
Coarse textured soils (fine sand and loamy fine sand)	• soil is moist enough to form a weak ball with loose and clustered sand grains on fingers • darkened color • moderate water staining on fingers • will not ribbon
Moderately coarse textured soils (sandy loam and fine sandy loam)	• soil is moist enough to form a ball with defined finger marks • very light soil/water staining on fingers • darkened color • will not stick

Medium textured soils (sandy clay loam, loam, and silt loam)	• soil is moist enough to form a ball • very light staining on fingers • darkened color • pliable • forms a weak ribbon between the thumb and forefinger
Fine textured soils (clay, clay loam, and silty clay loam)	• soil is moist enough to form a smooth ball with defined finger marks • light soil/water staining on fingers • ribbons between thumb and forefinger
NOTE: 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. Whenever possible, the field should 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 agent, soil conservationist, or pest control advisor (agriculture consultant) should be consulted for assistance.	

Flushing Irrigation Lines

- *For central pivot or solid set sprinkler irrigation:* 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 for Shank Injection or Rotary Tiller Applications

- Do not apply or allow fumigant to spill 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 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, for example, 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.

- Injectors must be below the soil surface before product flow begins.

- *For shank injection only.*
  - 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 (for example, 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.

Prevention of End Row Spillage

Do not apply or allow fumigant to spill onto the soil surface. For each injection line either have a check valve located as close as possible to the final injection point, or drain/purge the line of any remaining fumigant prior to lifting injection shanks from the ground.

Application and Equipment Considerations for Central Pivot. Solid Set Sprinkler and Drench Applications

- Anti-siphon and backflow 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 potassium.
- 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 (for example, diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

- *For central pivot only:*
  - Use only positive displacement pumps. DO NOT use impellors made of brass, aluminum or galvanized material.

- *For drench only:*
  - Dry disconnect couplings (closed transfer system) must be installed on all tanks and transfer hoses.

- Each nozzle must be equipped with a flow monitor, for example, mechanical, electronic, or Red-ball type monitor.
- Nozzles and metering devices are of correct size and are sealed and unobstructed.
- 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.

Application and Equipment Considerations for sprinkling can and hose-proportioner applications to limited areas

- Application equipment must be in good working order.
- Tanks must be in good condition to ensure product does not spill or leak.
- Tanks must have proper pesticide labels affixed to them.
- For undiluted product, aluminum, brass, copper, galvanized iron, and zinc materials cannot be used.
- 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.

Application and Equipment Considerations for Flood Applications

- 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 19 to 113 cm of water per treated hectare 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.
- Backflow 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 capable of being fitted with the 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.

USES, APPLICATION METHODS & RATES

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests. DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

DO NOT apply this product through any other type of irrigation system than what is permitted on this label.

DO NOT apply when wind speed causes non-uniform distribution and/or favours drift beyond the area intended for treatment.

DO NOT apply this product in a way that will contact workers or other persons, either directly or through drift.

DO NOT allow effluent or runoff from greenhouses containing this product to enter lakes, streams, ponds or other waters.

Before applying Busan 1180 always cultivate thoroughly area to be treated, breaking up clods and loosening soil deeply and thoroughly. A week before treatment, moisten soil after cultivation to the desired depth; sprinkle or flood irrigate. **This step is essential for all methods of use.** Immediately before application, cultivate lightly if the soil has crusted.

Do not apply to the soil surface, as in the sprinkler method, when air temperature is over 30 °C or when low humidity or high winds would cause loss of Busan 1180 before it can be drenched into the soil with additional water. If fumes become unpleasant during treatment, apply more water to seal the fumes into the soil where they should be confined to achieve maximum fumigant benefit.

The activity of Busan 1180 is increased by the use of a tarp (plastic, paper, or fabric) spread loosely over the treated area and secured to prevent removal by wind. Keep covered for a minimum period of 5 days (120 hours) (see **TARP PERFORATION AND/OR REMOVAL** section of this label**)**. Seven days after treatment cultivate area to depth of 5 cm to aerate the soil. Do not seed earlier than 21 days after application when tarping method is used.

Use promptly after mixing with water. Do not allow solution to stand. Flush all equipment with water after each day's use. Disassemble valves and clean carefully.

FOR SHALLOW PESTS IN SEED BEDS, PLANT BEDS, LAWNS AND OTHER LIMITED AREAS:

SPRINKLING CAN METHOD: Place 0.29 L Busan 1180 in a spanking can, fill with water, and sprinkle uniformly over 5 m^2 of well-prepared soil. Sprinkle immediately with water until soil is sealed, or tarp for a minimum of 5 days (120 hours). *Follow Buffer Zone* ***Table A.***

HOSE PROPORTIONER METHOD**:** Add 0.58 L Busan 1180 to 3 L water in a bucket or other container and apply, using a hose proportioner, to an area of 10 m^2. Sprinkle with water until soil is sealed or tarp for a minimum of 5 days (120 hours). *Follow Buffer Zone* ***Table B.***

SOIL INJECTION: Space injection shanks 12 cm apart and inject Busan 1180 10 cm into well prepared soil. Follow immediately with a roller to smooth and compact the soil surface. Light watering or a tarp after rolling helps prevent gas escape. For seedbeds a dosage of
0.46 – 0.58 L per 10 m^2 is recommended. *Follow Buffer Zone* ***Table C.***

ROTARY TILLER**:** Spray or sprinkle diluted Busan 1180 immediately in front of tiller. Use 0.58 L Busan 1180 in 10 L water per each 10 m^2. Follow immediately with a roller to smooth and compact the soil surface. Light watering or a tarp after rolling will help prevent gas escape. *Follow Buffer Zone* ***Table D.***

FIELD APPLICATION—WHERE ENTIRE AREA IS BEING TREATED (BROADCAST):

SOIL INJECTION: Space thin injection shanks 12 cm apart and inject Busan 1180 10 cm deep into well prepared soil. Follow immediately with a roller to smooth and compact surface. Light watering or a tarp after rolling helps prevent gas escape. For field use, 231 to 576 L Busan 1180 per hectare is recommended. *Follow Buffer Zone* ***Table E.***

SPRINKLER SYSTEM: Use 431 to 576 L Busan 1180 per hectare. For control of shallow pests (top 30 cm or less into soil), run sprinklers 5 to 10 min. In next 10 to 20 min. inject into the sprinkler system all Busan 1180 needed for the area covered. For control of pests deeper than 45 cm in the soil, divide Busan 1180 into 3 or more equal part and apply at intervals during the sprinkling period. *Follow Buffer Zone* ***Table F, G or H*** *for Central Pivot Irrigation (high, medium or low release) OR* ***Table I*** *for Solid Set Sprinkler Irrigation.*

POTATO FIELDS: For use in sprinkler systems to control nematodes, use 308 to 579 L Busan 1180 per hectare. Inject into the sprinkler system all Busan 1180 needed for the area covered. Apply a minimum of 3 cm of water. Use only sprinkler systems that give large droplets to prevent excessive loss. Apply only through central pivot or solid set sprinkler irrigation systems containing antisiphon and check valves which will prevent water source contamination and overflow of the slurry tank. The systems must also contain interlocking controls between the metering device and the water pump to ensure simultaneous shut-off. Soil temperature should be in the range of 4 - 30 °C at the depth of application. Busan 1180 will only control nematodes which are in the fumigated zone at time of treatment.
Follow Buffer Zone ***Table F, G or H*** *for Central Pivot Irrigation (high, medium or low release) OR* ***Table I*** *for Solid Set Sprinkler Irrigation.*

CHECK OR FLOOD IRRIGATION: Meter Busan 1180 at a steady rate into water during irrigation. Use 308 L to 579 L Busan 1180 per hectare, depending upon the kind of pest and depth desired, in 7 to 45 cm of water per hectare. *Follow Buffer Zone* ***Table J***.

FIELD APPLICATION TO BEDS OR ROWS:

SOIL INJECTION: Inject 231 – 434 L Busan 1180 per hectare into pre-formed plant beds (*the maximum broadcast equivalent application rate for pre-formed plant beds is 434 L per hectare;* Refer to **Calculating the Broadcast Equivalent Application Rate** section). If a wider treated band is desired, space 2 or more shanks at intervals of 12 cm to cover the desired treating width. Roll immediately. *Follow Buffer Zone* ***Table K*** *for Bed or Row Applications.*

SOIL COVERING METHODS: (Bed-over methods) Busan 1180 may be sprayed or dripped onto the soil immediately ahead of bed-shaping equipment. Cover the Busan 1180 with soil to a depth of 8 to 15 cm. The soil should be rolled and compacted immediately. The recommended rate of Busan 1180 is 290 - 434 L per treated hectare (*the maximum broadcast equivalent rate for bed-over methods is 434 L per hectare;* Refer to **Calculating the Broadcast Equivalent Application Rate** section). *Follow Buffer Zone* ***Table K*** *for Soil Covering Applications.*

TREATMENT OF TREE REPLANT SITES: After removing dead or diseased tree and as much of the root system as possible, make a shallow basin over the planting site. Add Busan 1180 to the stream of water while filling the basin. Use 0.43 L Busan 1180 per 10 m^2 in sufficient water (depending on soil type) to penetrate at least 2 metres. For control of oak root fungus, use a basin at least 6 x 6 metres. Use 0.43 L Busan 1180 per 10 m^2 in sufficient water to penetrate to the depth of root system. If water is tanked to the planting site, add Busan 1180 to the water and mix before filling basin. *The Buffer Zone is* ***8 metres*** *per treated tree.*

TREATMENT OF POTTING SOIL:
A. SPRINKLE METHOD:
1 Spread soil in a smooth layer 10 cm high on concrete or on pre-treated soil.
2. Sprinkle Busan 1180 at a rate of 0.20 L in 20 L of water per 10 m^2 of surface area.
3. Layers can be treated one on top of another.
4. Sprinkle top layer with sufficient additional water to seal the surface, or cover with tarp (plastic, kraft paper. etc.).
Follow Buffer Zone ***Table L***.

B. CEMENT MIXER

1. Add Busan 1180 to soil mix at rate of 0.31 L Busan 1180 per m^3 of soil, in cement or similar mixer. Mix thoroughly.
2. After soil is treated and piled, sprinkle water over entire surface to seal in gas. Or, cover with tarp (plastic, kraft paper, etc).

*The Buffer Zone distance is **8 metres**.*

C. SHREDDER:

1. Dilute Busan 1180 in sufficient wafer to obtain even distribution. As soil is ejected from shredder, spray uniformly on soil stream at rate of 0.31 L Busan 1180 per m^3 of soil.
2. After all soil is treated and piled, apply light water seal to entire surface or cover with tarp.

*The Buffer Zone distance is **8 metres**.*

TOBACCO PLANT BEDS: Fall applications are recommended wherever possible. Read and follow "DIRECTIONS FOR USE" carefully.

Prepare the bed 5 to 7 days before application to ensure best conditions of weed seed germination and fumigant action of Busan 1180. The bed should be free of clods, level and in good tilth. Apply using Tarp or Drench Method as described below. Seven (7) days after the application of Busan 1180, loosen the treated soil to a depth of 5cm. Do not seed tobacco earlier than 21 days after the application of Busan 1180. *Follow Buffer Zone **Table M** for Tobacco Plant Beds. For bedded applications, refer to the Calculating the Broadcast Equivalent Application Rate section.*

A. TARP METHOD

Apply 2.46 – 3.7 L of Busan 1180 in a minimum of 150 L of water per 30 m^2 (*the maximum broadcast equivalent rate for tobacco plant beds is 579 L per hectare, equivalent to 1.74 L per 30* m^2. Apply uniformly over the entire bed. Cover the bed immediately with a plastic cover. Keep covered no less than 5 days (120 hours). The cover need not be tented, but should be secured to prevent wind from uncovering the treated area. 11801180

B. DRENCH METHOD:

Apply 5.79 L of Busan 1180 in 570 to 750 L of water per 100 m^2. Application may be made with sprinklers, sprayers with nozzles, or any suitable equipment.

SAFETY GERMINATION TEST:

The following test can be carried out to establish when it is safe to use any soil following treatment.

Take a minimum of six random samples from the treated area. For large areas, take 15 samples for each hectare. These samples must be representative of the whole area and the depth of soil treated. Where the area treated is large, the samples may be bulked, then well-mixed and re-sampled. Samples should be taken down to the depth at which incorporation was made.

Put the soil into glass jars or similar non-porous containers. These should be about half filled. Level the soil, moisten if necessary, add moistened cotton pads or filter paper and sprinkle with cress seed. Carefully seal the top of the jars with screw tops or polyethylene held on with rubber band. Prepare a similar test sample using untreated soil. Place the jars in a warm room where germination should occur in approximately 48 hours, at which time they should be checked. Residues of the product are still present if there is any suppression of germination or discolouration of sprouting cress in the treated soil when compared with the untreated sample. In that case, the time before planting should be extended for a further few days. An additional aeration may help speed up removal of the gases from the soil.

Repeat the Safety Germination Test until the cress seeds germinate evenly in all the jars. It is then safe to plant in the soil.

CULTIVATION AND PLANTING AFTER APPLICATION

On well drained soils of light to medium texture which are not excessively wet or cold following application, planting may take place 21 days after treatment. If soils are heavy or especially high in organic matter or remain wet and/or cold (below 15°C) following application of Busan 1180, a minimum interval of 30 days should be observed. Where dosages are greater than 576 L per hectare, wait at least 60 days. On heavy and wet soils, light surface cultivation to break up crusting and promote drying of the soil should be done 5 to 7 days after application. This cultivation may be repeated as necessary. To avoid reinfesting treated soils, cultural practices should be such that untreated soils are not mixed with treated soils.

SPECIAL INSTRUCTIONS: When treating potting soil, or heavier field soils including soils high in clay or organic matter, it is **especially important** that the soil be allowed to aerate and dry thoroughly after using Busan 1180. During cold and/or wet weather, frequent shallow cultivations may aid the escape of Busan 1180 from the soil. If in doubt transplant a seedling plant and examine for injury before planting crop.

BUFFER ZONE REQUIREMENTS:

A buffer zone must be established for **every** fumigant application. A buffer zone is an area established around the perimeter of each application block. The following describes the buffer zone requirements:

- The buffer zone must extend outward from the edge of the application block perimeter equally in all directions.
- The Buffer Zone Period begins at the start of the application and lasts for a minimum of 48 hours after the application is complete.
- Only fumigant handlers, emergency personnel, and local, provincial, or federal officials performing inspection, sampling, or other similar official duties may be in the buffer zone during the Buffer Zone Period.
- All non-handlers, including field workers, nearby residents, pedestrians, and other bystanders, must be excluded from the buffer zone during the Buffer Zone Period except for transit (i.e. vehicular and bicycle traffic) through the buffer zone.

Buffer Zone Proximity

Before the start of the application, the applicator must determine whether the buffer zone will overlap any other 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 potassium (or other MITC generating pesticides) application blocks must not overlap UNLESS a minimum of 12 hours have elapsed from the time the earlier application(s) is complete until the start of the latter application.

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

- Before the application begins, the 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 potassium application blocks may not overlap UNLESS:
    - Both application blocks are treated using low release height-solid stream central 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 central pivot rig also equipped with low release height etc.) For buffers from application blocks within the same field to overlap, 12 hours must elapse from the completion of the first application until the start of the subsequent application.

- Emergency preparedness and response measures specified in the label have been implemented if there are any homes, businesses, or property not within the control of the fumigator within 90 metres of each buffer zone.

Buffer zones must not include buildings used for storage (such as sheds, barns, garages) UNLESS these buildings are not occupied during the Buffer Zone Period and do not share a common wall with an occupied structure.

Buffer zones must not include residential areas (for example, employee housing, private property), buildings (for example, commercial, industrial), outdoor residential areas (for example, lawns, gardens, play areas) and other areas that people may occupy, UNLESS:

- 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
- re-entry by occupants and other non-handlers must not occur until:
  - the Buffer Zone Period has ended, and
  - no sensory irritation (tearing, burning of the eyes or nose) is experienced upon re-entry.

Buffer zones may not include agricultural areas owned/operated by persons other than the owner/operator of the application block, UNLESS:

- the owner/operator of the application block can ensure that the buffer zone will not overlap with a metam potassium (or other MITC generating pesticides) buffer zone from any adjacent property owners, except as provided for above, and
- the owner of the other property provides written agreement 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 public or private roadways and rights of way UNLESS:

- the area is not occupied during the Buffer Zone Period, and
- entry by non-handlers is prohibited during the Buffer Zone Period, except for transit (i.e. vehicular and bicycle traffic) through the buffer zone.

IMPORTANT: Buffer zones are not permitted to include bus stops or other locations where persons wait for public transit.

Buffer zones must not include any other publicly owned and/or operated areas such as parks, sidewalks, permanents walking paths, playgrounds and athletic fields UNLESS:

- the area is not occupied during the Buffer Zone Period,
- entry by non-handlers is prohibited during the Buffer Zone Period, and
- written permission to include the public area in the buffer zone is granted by the appropriate provincial/territorial and/or local authorities responsible for management and operation of the area.

<u>Restrictions for Difficult to Evacuate Sites</u>
Difficult-to-evacuate sites include schools (preschool to grade 12), provincial/territorial-licensed daycare centers, nursing homes, assisted living facilities, hospitals, in-patient clinics, and prisons.

No fumigant application with a buffer zone greater than 90 metres is permitted within 400 metres of difficult to evacuate sites unless the site is not occupied by children, students (preschool to grade 12), patients, or prisoners during the application and the 36-hour period following the end of application.

No fumigant application with a buffer zone of 90 metres or less is permitted within 200 metres of the difficult to evacuate sites unless the site is not occupied during the application by children, students (preschool to grade 12), patients, or prisoners and the 36-hour period following the end of application.

Posting Requirements for Buffer Zones

Posting of Buffer Zone signs 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 applicator must ensure compliance with local/provincial laws and regulations.

Buffer Zone signs must conform to the following requirements:

- The printed side of the sign must face away from the application block toward areas from which people could approach.
- Signs must be clearly legible during entire posting period. The sign must be at least 35 cm by 25 cm in size, and made of substantial material that can be expected to withstand adverse weather conditions. Letter must be at least 7 cm in height.
- Signs must be posted prior to the start of the application (but no sooner than 24 hours prior to 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.
- Only a fumigant handler may remove Buffer Zone signs.
- The Buffer Zone signs must contain the following information in ENGLISH and FRENCH:
  - The "Do not walk" symbol
  - "DO NOT ENTER except for vehicular or bicycle traffic"
  - "Metam potassium BUSAN 1180 BUFFER ZONE"
  - The date and time the Buffer Zone Period is over
  - The name, address, and telephone number of the applicator
- 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.

CALCULATING THE BROADCAST EQUIVALENT APPLICATION RATE:

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

- litres of product per treated hectare
- strip or bed bottom width (cm)
- center-to-center row spacing (cm)
- application block size (hectares)

Litres of product **per treated hectare** is the ratio of total amount of product applied to the size of the **total area treated** (for example, 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 in Figure 1 (for example, black

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

areas are 0.6 ha 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 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.

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

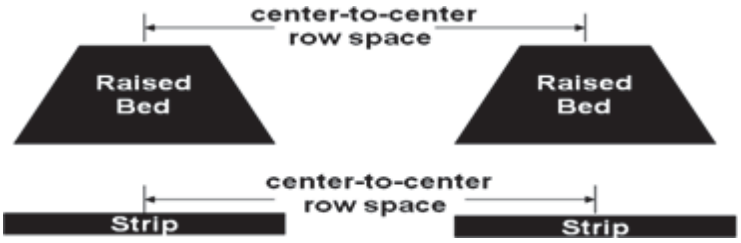
$$\text{Broadcast equivalent rate (litres product/hectare)} = \frac{\text{Strip or bed bottom width (cm)}}{\text{Center-to-center row spacing (cm)}} \times \text{Litres of product/treated hectare applied in the strip or bed}$$

The bed width must be measured from the bottom edge of the bed.

The center-to-center row spacing must be calculated as shown in Figure 2.

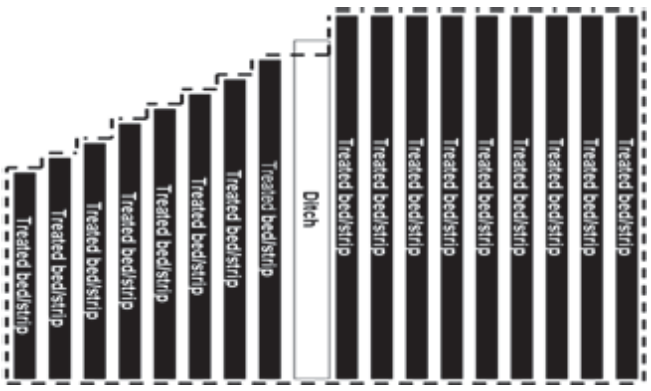
If there are any ditches, waterways, drive rows and other areas that are not fumigated that are in the application block, multiply the above broadcast equivalent equation by: **(total area of strips or beds + row spacing)/(application block size)**. A sample calculation is provided below.

Figure 2. Center Row Spacing



Sample broadcast equivalent rate calculation
Assumptions:

- Application method is shank bedded. Beds are tarped following application.
- Strip/Bed width is 80 cm (measured at the bottom of bed)
- Center-to-center row spacing is 160 cm
- 935 litres of product per treated hectares is applied in the beds
- Total application block size is 4 hectares
- Ditch in the middle of application block is 0.1 hectare
- Area of strips/beds and row spacing is 3.9 hectares



$$\textbf{broadcast equivalent application rate (L product/ha)} = \frac{\text{bed width (cm)}}{\text{center-to-center row spacing (cm)}} \times \frac{\text{area of beds plus row spacing (ha)}}{\text{application block size (ha)}} \times \text{L product/ha applied in the bed}$$

$$\textbf{broadcast equivalent application rate (L product/ha)} = \frac{80\text{ cm}}{160\text{ cm}} \times \frac{3.9\text{ ha}}{4.0\text{ ha}} \times 935\text{ L product/ha}$$

broadcast equivalent application rate (L product/ha) = 455.8 L product/ha

BUFFER ZONE DISTANCES:

Buffer zone distances must be calculated based on the buffer zone look-up tables provided on this label, using the broadcast equivalent application rate, (see **Calculating the Broadcast Equivalent Application Rate** section) and the size of the application block. Where applicable, round up to the nearest block size. Applications are prohibited for rates and block sizes that exceed what is presented in the buffer zone tables.

Eight (8) metres is the minimum buffer distance regardless of site-specific application parameters.

If the buffer zone distance, after applying all applicable buffer zone credits (see **Buffer Zone Credits** section), is greater than 0.8 km (800 metres) then the application is prohibited.

Table A. Buffer zone distances (metres) for sprinkling can method over limited areas:

Broadcast Equivalent Application rate	≤ 0.4 ha (≤ 4000 m^2)	0.5 ha (5000 m^2)	1 ha (10,000 m^2)
0.29 L/5 m^2	111	122	143

Table B. Buffer zone distances (metres) for hose proportioner method over limited areas:

Broadcast Equivalent Application rate	≤ 0.4 ha (≤ 4000 m^2)	0.5 ha (5000 m^2)	1 ha (10,000 m^2)
0.58 L/10 m^2	46	50	58

Table C. Buffer zone distances (metres) for soil injection method over limited areas:

Broadcast Equivalent Application rate	≤ 0.4 ha (≤ 4000 m^2)	0.5 ha (5000 m^2)	1 ha (10,000 m^2)
0.46 - 0.58 L/10m^2	8	8	8

Table D. Buffer zone distances (metres) for rotary tiller method over limited areas:

Broadcast Equivalent Application rate	≤ 0.4 ha (≤ 4000 m^2)	0.5 ha (5000 m^2)	1 ha (10,000 m^2)
0.58 L/10 m^2	8	8	8

Table E. Buffer zone distances (metres) for soil injection application method (broadcast, untarped).[a]

Broadcast equivalent application rate (L/ha)	Block Size (hectares)																			
	0.5	1	2	3	4	6	8	10	12	14	16	20	24	28	32	36	40	48	56	64
231-243	8	8	8	8	8	8	8	8	8	8	8	9	9	11	12	12	13	17	19	22
244-250	8	8	8	8	8	8	8	8	8	8	8	9	10	11	12	13	13	17	20	23
251-257	8	8	8	8	8	8	8	8	8	8	8	9	10	11	12	13	14	18	21	24
258-265	8	8	8	8	8	8	8	8	8	8	9	10	10	11	13	14	14	18	22	25
266-272	8	8	8	8	8	8	8	8	8	9	9	10	11	12	13	14	15	19	22	25
273-286	8	8	8	8	8	8	8	8	9	9	9	10	11	12	14	15	15	20	23	26
287-293	8	8	8	8	8	8	8	9	9	9	10	11	11	13	14	15	16	20	24	27
294-300	8	8	8	8	8	8	8	9	9	10	10	11	12	13	15	16	17	22	25	29
301-315	8	8	8	8	8	8	9	9	10	10	10	11	13	14	16	17	18	23	26	30
316-322	8	8	8	8	8	8	9	10	10	10	11	11	13	15	16	18	18	24	28	32
323-329	8	8	8	8	8	8	9	10	10	11	11	12	14	15	17	18	19	25	29	33
330-336	8	8	8	8	8	8	9	10	10	11	11	12	15	16	18	19	20	26	31	35
337-351	8	8	8	8	8	8	10	10	11	11	11	12	15	17	18	20	21	28	32	37
352-358	8	8	8	8	8	8	10	11	11	11	12	13	16	18	19	21	22	29	34	38
359-365	8	8	8	8	8	8	10	11	11	11	12	13	17	18	20	21	23	30	35	40
366-372	8	8	8	8	8	8	10	11	11	12	12	13	18	19	21	22	24	31	36	42
373-387	8	8	8	8	8	8	11	11	12	12	12	14	18	20	21	23	25	33	38	43
388-394	8	8	8	8	8	9	11	11	12	12	13	14	19	20	22	24	26	34	39	45
395-401	8	8	8	8	8	9	11	12	12	13	13	14	20	21	23	24	27	35	41	47
402-415	8	8	8	8	8	9	11	12	12	13	13	15	20	22	23	25	28	36	42	48
416-422	8	8	8	8	8	9	11	12	13	13	14	15	21	22	24	26	29	37	43	50
423-430	8	8	8	8	8	9	12	13	13	14	14	15	22	23	25	27	29	39	45	51
431-437	8	8	8	8	8	10	12	13	13	14	14	16	22	24	25	27	30	40	47	53
438-444	8	8	8	8	8	10	12	13	14	14	15	16	23	25	26	28	31	41	48	54
445-458	8	8	8	8	8	10	12	13	14	14	15	16	24	25	27	29	32	42	49	56
459-466	8	8	8	8	9	10	13	14	14	15	15	17	25	26	28	30	33	43	51	58
467-473	8	8	8	8	9	11	13	14	15	15	15	17	25	27	28	30	34	45	52	59
474-487	8	8	8	8	9	11	13	14	15	15	16	17	26	27	29	31	35	46	54	61
488-494	8	8	8	8	9	11	13	15	15	15	16	18	27	28	30	32	36	47	55	63
495-501	8	8	8	8	9	11	14	15	15	16	16	18	27	29	30	33	37	48	56	64
502-509	8	8	8	9	9	11	14	15	15	16	17	18	28	29	31	36	40	50	59	67
510-523	8	8	8	9	10	11	14	15	16	16	17	18	29	30	32	36	41	51	60	68
524-530	8	8	8	9	10	11	14	15	16	17	17	19	29	30	32	37	42	52	61	69

Broadcast equivalent application rate (L/ha)	Block Size (hectares)																			
	0.5	1	2	3	4	6	8	10	12	14	16	20	24	28	32	36	40	48	56	64
531-537	8	8	8	9	10	12	15	16	16	17	17	19	29	31	33	37	42	53	62	71
538-545	8	8	8	9	10	12	15	16	17	17	18	19	30	32	33	38	43	54	63	72
546-559	8	8	8	9	10	12	15	16	17	17	18	20	30	32	34	39	44	55	64	73
560-566	8	8	8	10	10	12	15	16	17	18	18	20	31	33	34	39	44	56	65	74
567-573	8	8	8	10	11	12	15	17	17	18	18	20	31	33	35	40	45	57	66	75
574-579	8	8	9	10	11	13	16	17	18	18	19	21	32	34	35	40	46	57	67	77

[a] If a water seal is applied for soil injection application (broadcast, untarped), the buffer zone distance is 8 m for all application rates and block sizes.

Table F. Buffer zone distances (metres) for central pivot irrigation application method (high release).[a]

Broadcast equivalent application rate (L/ha)	Block Size (hectares)															
	0.5	2	4	8	12	16	20	24	28	32	36	40	44	48	56	64
308-322	68	92	107	122	145	168	191	214	229	244	260	275	290	305	366	427
323-358	72	96	115	138	170	195	220	252	271	290	305	321	336	351	412	473
359-394	77	100	122	153	195	221	248	290	313	336	351	366	381	397	458	519
395-430	80	104	130	168	220	248	277	328	355	381	397	412	427	442	503	564
431-466	84	107	138	183	244	275	305	366	397	427	442	458	473	488	549	610
467-501	88	111	149	199	260	298	336	397	427	458	477	496	515	534	595	656
502-537	92	115	161	214	275	321	366	427	458	488	511	534	557	580	641	702
538-573	96	119	172	229	290	343	397	458	488	519	545	572	599	625	686	747
574-579	100	122	183	244	305	366	427	488	519	549	580	610	641	671	732	793

[a] For central pivot irrigation equipment which are 1) release height or spray height greater than 2.4 metres, AND 2) there is greater than 30 lbs psi at the sprinkler head.

Table G. Buffer zone distances (metres) for central pivot irrigation application method (medium release).[a]

Broadcast equivalent application rate (L/ha)	Block Size (hectares)															
	0.5	2	4	8	12	16	20	24	28	32	36	40	44	48	56	64
308-322	23	31	46	61	84	107	130	153	168	183	199	214	229	244	305	366
323-358	27	35	54	77	109	134	159	191	210	229	244	260	275	290	351	412
359-394	31	39	61	92	134	161	187	229	252	275	290	305	321	336	397	458
395-430	35	43	69	107	159	187	216	267	294	321	336	351	366	381	442	503

431-466	39	46	77	122	183	214	244	305	336	366	381	397	412	427	488	549
467-501	43	81	88	138	199	237	275	336	366	397	416	435	454	473	534	595
502-537	46	54	100	153	214	260	305	366	397	427	450	473	496	519	580	641
538-573	50	58	111	168	229	282	336	397	427	458	485	511	538	564	625	686
574-579	54	61	122	183	244	305	366	427	458	488	519	549	580	610	671	732

[a] For central pivot irrigation equipment which are 1) release height or spray height less than 2.4 metres, AND 2) there is 29 lbs psi or less at the sprinkler head, AND 3) there are no end guns.

Table H. Buffer zone distances (metres) for central pivot irrigation application method (low release).[a]

Broadcast equivalent application rate (L/ha)	**Block Size (hectares)**															
	0.5	**2**	**4**	**8**	**12**	**16**	**20**	**24**	**28**	**32**	**36**	**40**	**44**	**48**	**56**	**64**
308-322	23	31	46	61	84	107	130	153	168	183	199	214	229	244	305	366
323-358	27	35	54	77	109	134	159	191	210	229	244	260	275	290	351	412
359-394	31	39	61	92	134	161	187	229	252	275	290	305	321	336	397	458
395-430	35	43	69	107	159	187	216	267	294	321	336	351	366	381	442	503
431-466	39	46	77	122	183	214	244	305	336	366	381	397	412	427	488	549
467-501	43	81	88	138	199	237	275	336	366	397	416	435	454	473	534	595
502-537	46	54	100	153	214	260	305	366	397	427	450	473	496	519	580	641
538-573	50	58	111	168	229	282	336	397	427	458	485	511	538	564	625	686
574-579	54	61	122	183	244	305	366	427	458	488	519	549	580	610	671	732

[a] For central pivot irrigation equipment which are 1) release height or spray height less than 1.2 metres, AND 2) there is 29 lbs psi or less at the sprinkler head, AND 3) the application system produces a solid stream (for example, drizzle boom/Smart Drop®), AND 4) there are no end guns.

Table I. Buffer zone distances (metres) for solid set sprinkler irrigation application method.

Broadcast equivalent application rate (L/ha)	**Block Size (hectares)**															
	0.5	**1**	**2**	**3**	**4**	**8**	**12**	**16**	**20**	**24**	**28**	**32**	**36**	**40**	**44**	**48**
308-322	25	29	37	43	46	61	84	107	130	153	168	183	199	214	229	244
323-358	27	33	43	50	54	77	109	134	159	191	210	229	244	260	275	290
359-394	30	36	43	48	61	92	134	161	187	229	252	275	290	305	321	336
395-430	32	39	53	64	69	107	159	187	216	267	294	321	336	351	366	381
431-466	35	43	58	71	77	122	183	214	244	305	336	366	336	397	412	427

467-501	47	69	84	87	88	138	199	237	275	336	366	397	416	435	454	473
502-537	43	50	72	90	100	153	214	260	305	366	397	427	450	473	496	519
538-573	46	54	79	100	111	168	229	282	336	397	427	458	485	511	538	564
574-579	50	58	86	110	122	183	244	305	366	427	458	488	519	549	580	610

Table J. Buffer zone distances (metres) for check or flood irrigation application method.

Broadcast equivalent application rate (L/ha)	**Block Size (hectares)**																	
	0.5	**1**	**2**	**3**	**4**	**6**	**8**	**10**	**12**	**14**	**16**	**20**	**24**	**28**	**32**	**36**	**40**	**48**
308-315	51	61	75	85	90	114	130	146	162	187	211	235	260	284	308	332	357	405
316-322	52	62	77	87	92	117	134	150	167	192	217	242	267	292	317	342	367	417
323-329	54	64	79	90	95	121	138	155	172	198	223	249	275	300	326	352	378	429
330-336	55	66	82	92	97	124	142	159	177	203	230	256	282	309	335	362	388	441
337-351	57	68	84	95	100	127	145	163	182	209	236	263	290	317	344	371	399	453
352-358	58	69	86	97	103	131	149	168	186	214	242	270	298	325	353	381	409	465
359-365	60	71	88	100	105	134	153	172	191	220	248	277	305	334	363	391	420	477
366-372	61	73	90	102	108	137	157	176	196	225	254	284	313	342	371	401	430	489
373-387	62	75	93	104	111	140	161	181	200	231	260	291	321	350	381	410	441	501
388-394	64	76	95	107	113	144	164	185	205	236	267	297	328	359	390	420	451	513
395-401	65	78	97	110	116	147	168	189	210	242	273	304	336	367	399	430	462	524
402-415	67	80	99	112	118	150	172	193	215	247	279	311	343	375	408	440	472	536
416-422	68	82	101	114	121	154	176	198	220	253	285	318	351	384	417	449	482	548
423-430	70	83	104	117	124	157	180	202	224	258	292	325	359	392	426	459	493	560
431-437	72	85	106	119	126	161	183	206	229	264	298	332	366	401	435	469	503	572
438-444	73	87	108	122	129	164	187	211	234	269	304	339	374	409	444	479	514	584
445-458	74	89	110	124	132	167	191	215	239	274	310	346	381	417	453	489	524	596
459-466	76	90	112	127	134	171	195	219	243	280	316	353	389	426	462	499	535	608
467-473	77	92	114	129	137	174	199	223	248	285	322	360	397	434	471	508	545	620
474-487	79	94	117	132	139	177	203	228	253	291	329	367	404	442	480	518	556	631
488-494	80	96	119	134	142	181	206	232	258	296	335	373	412	451	489	528	566	643
495-501	82	97	121	137	145	184	210	236	262	302	341	380	420	459	498	538	577	655
502-509	83	99	123	139	147	187	214	241	267	307	347	387	427	467	507	547	587	667
510-523	85	101	125	142	150	190	218	245	272	313	353	394	435	476	516	557	598	679
524-530	86	103	128	144	152	194	221	249	277	318	360	401	442	484	525	567	608	691

Broadcast equivalent application rate (L/ha)	Block Size (hectares)																	
	0.5	1	2	3	4	6	8	10	12	14	16	20	24	28	32	36	40	48
531-537	88	104	130	146	155	197	225	253	282	324	366	408	450	492	535	577	619	703
538-545	89	106	132	149	158	200	229	258	286	329	372	415	458	501	543	586	629	715
546-559	90	108	134	152	160	204	233	262	291	335	378	422	465	509	552	596	640	727
560-566	92	110	136	154	163	207	237	266	296	340	384	429	473	517	562	606	650	739
567-573	93	111	139	157	165	211	241	271	300	346	391	435	481	526	570	616	661	751
574-579	95	113	141	159	168	214	244	275	305	351	397	442	488	534	580	625	671	762

Table K. Buffer zone distances (metres) for soil injection (beds or rows) and soil covering (bed-over method) application methods (tarped and untarped).

Broadcast equivalent application rate (L/ha)	Block Size (hectares)																	
	0.5	1	2	3	4	6	8	10	12	14	16	20	24	28	32	36	40	48
308-315	51	61	75	85	90	114	130	146	162	187	211	235	260	284	308	332	357	405
316-322	52	62	77	87	92	117	134	150	167	192	217	242	267	292	317	342	367	417
323-329	54	64	79	90	95	121	138	155	172	198	223	249	275	300	326	352	378	429
330-336	55	66	82	92	97	124	142	159	177	203	230	256	282	309	335	362	388	441
337-351	57	68	84	95	100	127	145	163	182	209	236	263	290	317	344	371	399	453
352-358	58	69	86	97	103	131	149	168	186	214	242	270	298	325	353	381	409	465
359-365	60	71	88	100	105	134	153	172	191	220	248	277	305	334	363	391	420	477
366-372	61	73	90	102	108	137	157	176	196	225	254	284	313	342	371	401	430	489
373-387	62	75	93	104	111	140	161	181	200	231	260	291	321	350	381	410	441	501
388-394	64	76	95	107	113	144	164	185	205	236	267	297	328	359	390	420	451	513
395-401	65	78	97	110	116	147	168	189	210	242	273	304	336	367	399	430	462	524
402-415	67	80	99	112	118	150	172	193	215	247	279	311	343	375	408	440	472	536
416-422	68	82	101	114	121	154	176	198	220	253	285	318	351	384	417	449	482	548
423-430	70	83	104	117	124	157	180	202	224	258	292	325	359	392	426	459	493	560
431-437	72	85	106	119	126	161	183	206	229	264	298	332	366	401	435	469	503	572
438-444	73	87	108	122	129	164	187	211	234	269	304	339	374	409	444	479	514	584
445-458	74	89	110	124	132	167	191	215	239	274	310	346	381	417	453	489	524	596
459-466	76	90	112	127	134	171	195	219	243	280	316	353	389	426	462	499	535	608

Broadcast equivalent application rate (L/ha)	Block Size (hectares)																	
	0.5	1	2	3	4	6	8	10	12	14	16	20	24	28	32	36	40	48
467-473	77	92	114	129	137	174	199	223	248	285	322	360	397	434	471	508	545	620
474-487	79	94	117	132	139	177	203	228	253	291	329	367	404	442	480	518	556	631
488-494	80	96	119	134	142	181	206	232	258	296	335	373	412	451	489	528	566	643
495-501	82	97	121	137	145	184	210	236	262	302	341	380	420	459	498	538	577	655
502-509	83	99	123	139	147	187	214	241	267	307	347	387	427	467	507	547	587	667
510-523	85	101	125	142	150	190	218	245	272	313	353	394	435	476	516	557	598	679
524-530	86	103	128	144	152	194	221	249	277	318	360	401	442	484	525	567	608	691
531-537	88	104	130	146	155	197	225	253	282	324	366	408	450	492	535	577	619	703
538-545	89	106	132	149	158	200	229	258	286	329	372	415	458	501	543	586	629	715
546-559	90	108	134	152	160	204	233	262	291	335	378	422	465	509	552	596	640	727
560-566	92	110	136	154	163	207	237	266	296	340	384	429	473	517	562	606	650	739
567-573	93	111	139	157	165	211	241	271	300	346	391	435	481	526	570	616	661	751
574-579	95	113	141	159	168	214	244	275	305	351	397	442	488	534	580	625	671	762

Table L. Buffer zone distance (metres) for treatment of potting soil sprinkle method.

Broadcast Equivalent Application rate	≤ 0.4 ha (≤ 4000 m^2)	0.5 ha (5000 m^2)	1 ha (10,000 m^2)
0.2 L/ 10 m^2	40	44	51

Table M. Buffer zone distances (metres) for tobacco plant beds, tarp and drench application methods.

Broadcast equivalent application rate			Block Size (hectares)																		
L prod/ha	L prod/ 100 m^2	L prod/ 30 m^2	≤0.4	0.5	1	2	3	4	6	8	10	12	14	16	20	24	28	32	36	40	48
43-49	0.43-0.49	0.129-0.149	9	10	11	14	16	17	22	27	29	32	34	39	43	48	50	55	60	65	72
50-56	0.50-0.56	0.150-0.170	11	12	14	17	19	21	26	32	35	38	40	46	52	58	61	66	72	78	86
57-71	0.57-0.71	0.171-0.215	13	14	16	19	22	24	30	37	40	44	47	54	61	67	71	77	84	90	100

72-78	0.72-0.78	0.216-0.236	15	16	18	22	25	27	35	43	46	50	54	61	69	77	81	88	96	104	115
79-85	0.79-0.85	0.237-0.257	16	18	21	25	28	30	39	48	52	56	61	69	78	86	90	99	108	116	129
86-92	0.86-0.92	0.258-0.278	18	19	23	27	32	34	43	53	58	62	67	77	86	96	100	110	120	129	143
93-107	0.93-1.07	0.279-0.323	20	21	25	30	35	37	48	58	63	68	74	84	95	105	111	121	132	142	158
108-114	1.08-1.14	0.324-0.344	21	23	27	33	38	40	52	63	69	75	81	92	104	115	121	132	143	155	172
115-121	1.15-1.21	0.345-0.365	23	25	29	36	41	44	56	68	75	81	87	100	112	124	131	143	155	168	186
122-128	1.22-1.28	0.366-0.386	25	27	32	38	44	47	61	74	81	87	94	107	121	134	140	154	167	181	200
129-143	1.29-1.43	0.387-0.431	26	29	34	41	47	50	65	79	86	93	100	115	129	143	150	165	179	193	215
144-150	1.44-1.50	0.432-0.452	28	31	36	44	50	54	69	84	92	100	107	122	138	153	161	176	191	206	229
151-157	1.51-1.57	0.453-0.473	30	33	38	46	53	57	73	90	98	106	114	130	146	162	171	187	203	219	243
158-164	1.58-1.64	0.474-0.494	32	35	40	49	56	61	78	95	104	112	121	138	155	172	181	198	215	232	258
165-178	1.65-1.78	0.495-0.536	33	36	43	52	59	64	82	100	109	118	127	145	163	182	190	209	227	245	272
179-186	1.79-1.86	0.537-0.560	35	38	45	54	62	67	86	105	115	124	134	153	172	191	200	220	239	258	286
187-193	1.87-1.93	0.561-0.581	37	40	47	57	65	71	90	111	121	131	140	161	181	200	211	231	250	271	300
194-200	1.94-2.00	0.582-0.602	39	42	49	60	68	74	95	116	126	137	147	168	189	210	221	242	262	283	315
201-214	2.01-2.14	0.603-0.644	40	44	51	62	72	77	99	121	132	143	154	176	198	220	231	253	274	296	329
215-222	2.15-2.22	0.645-0.668	42	46	54	65	75	81	104	126	138	149	161	183	206	229	241	264	286	309	343
223-229	2.23-2.29	0.669-0.689	44	48	56	68	78	84	108	132	143	155	167	191	215	239	250	274	298	322	358
230-243	2.30-2.43	0.690-0.731	46	50	58	71	81	87	112	137	149	161	174	199	223	248	260	285	310	335	372
244-250	2.44-2.50	0.732-0.752	47	52	61	73	84	90	116	142	155	168	181	206	232	258	271	296	322	348	386
251-257	2.51-2.57	0.753-0.773	49	54	63	76	87	94	121	147	161	174	187	214	241	267	281	307	334	360	401
258-265	2.58-2.65	0.774-0.797	51	55	65	79	90	97	125	152	166	180	194	221	249	277	291	318	346	373	415
266-272	2.66-2.72	0.798-0.818	53	57	67	81	93	100	129	158	172	186	200	229	258	286	300	329	358	386	429
273-286	2.73-2.86	0.819-0.860	54	59	69	84	97	104	133	163	178	193	207	237	266	296	310	340	370	399	443
287-293	2.87-2.93	0.861-0.881	56	61	72	87	100	107	138	168	183	199	214	244	275	305	321	351	381	412	458
294-300	2.94-3.00	0.882-0.902	58	63	74	90	103	111	142	173	189	205	221	252	283	315	331	362	393	425	472
301-315	3.01-3.15	0.903-0.947	59	65	76	92	106	114	146	179	195	211	227	260	292	325	341	373	405	438	486
316-322	3.16-3.22	0.948-0.968	61	67	78	95	109	117	150	184	200	217	234	267	300	334	350	384	417	451	501
323-329	3.23-3.29	0.969-0.989	63	69	80	97	112	121	155	189	206	223	241	275	309	343	360	395	429	463	515
330-336	3.30-3.36	0.990-1.010	65	71	82	100	115	124	159	194	212	230	247	282	318	353	371	406	441	476	529
337-351	3.37-3.51	1.011-1.055	66	72	85	103	118	127	163	200	218	236	254	290	326	363	381	417	453	489	543
352-358	3.52-3.58	1.056-1.076	68	75	87	106	121	131	168	205	223	242	260	298	335	372	391	428	465	502	558
359-365	3.59-3.65	1.077-1.097	70	76	89	108	124	134	172	210	229	248	267	305	343	381	401	439	477	515	572
366-372	3.66-3.72	1.098-1.118	72	78	92	111	127	137	176	215	235	254	274	313	352	391	410	449	489	528	586
373-387	3.73-3.87	1.119-1.163	73	80	94	114	131	140	181	221	241	260	281	321	360	401	421	460	501	541	601

388-394	3.88-3.94	1.164-1.184	75	82	96	116	134	144	185	226	246	267	287	328	369	410	431	471	513	553	615
395-401	3.95-4.01	1.185-1.205	77	84	98	119	137	147	189	231	252	273	294	336	378	420	441	482	524	566	629
402-415	4.02-4.15	1.206-1.247	79	86	100	122	140	150	193	236	258	279	300	343	386	429	451	493	536	579	643
416-422	4.16-4.22	1.248-1.268	80	88	103	125	143	154	198	242	264	285	307	351	395	439	460	504	548	592	658
423-430	4.23-4.30	1.269-1.292	82	90	105	127	146	157	202	247	269	292	314	359	403	448	471	515	560	605	672
431-437	4.31-4.37	1.293-1.313	84	92	107	130	149	161	206	252	275	298	321	366	412	458	481	526	572	618	686
438-444	4.38-4.44	1.314-1.334	86	93	109	132	152	164	211	257	281	304	327	374	421	467	491	537	584	631	701
445-458	4.45-4.58	1.335-1.376	87	95	111	135	155	167	215	262	286	310	334	381	429	477	501	548	596	643	715
459-466	4.59-4.66	1.377-1.400	89	97	114	138	158	171	219	268	292	316	341	389	438	486	510	559	608	656	729
467-473	4.67-4.73	1.401-1.421	91	99	116	141	161	174	223	273	298	322	347	397	446	496	520	570	620	669	744
474-487	4.74-4.87	1.422-1.463	92	101	118	143	164	177	228	278	303	329	354	404	455	505	531	581	631	682	758
488-494	4.88-4.94	1.464-1.484	94	103	120	146	168	181	232	283	309	335	360	412	463	515	541	592	643	695	772
495-501	4.95-5.01	1.485-1.505	96	105	122	149	171	184	236	289	315	341	367	420	472	524	551	603	655	708	786
502-509	5.02-5.09	1.506-1.529	98	107	125	151	174	187	241	294	321	347	374	427	481	534	561	614	667	721	801
510-523	5.10-5.23	1.530-1.571	99	108	127	154	177	190	245	299	326	353	381	435	489	543	570	625	679	734	805
524-530	5.24-5.30	1.572-1.592	101	111	129	157	180	194	249	304	332	360	387	442	498	553	581	636	691	746	819
531-537	5.31-5.37	1.593-1.613	103	112	132	160	183	197	253	310	338	366	394	450	506	563	591	647	703	759	834
538-545	5.38-5.45	1.614-1.637	104	114	134	162	186	200	258	315	343	372	401	458	515	572	601	658	715	772	848
546-559	5.46-5.59	1.638-1.679	106	116	136	165	189	204	262	320	349	378	407	465	524	581	611	669	727	785	862
560-566	5.60-5.66	1.680-1.700	108	118	138	168	193	207	266	325	355	384	414	473	532	591	620	680	739	798	876
567-573	5.67-5.73	1.701-1.721	110	120	140	170	196	211	271	331	360	391	421	481	541	601	631	691	751	805	890
574-579	5.74-5.79	1.722-1.737	111	122	143	173	199	214	275	336	366	397	427	488	549	610	641	702	762	819	904

BUFFER ZONE CREDITS:
The buffer zone distances (from the buffer zone look-up tables) for metam potassium applications can be reduced by the percentages listed in Table XII, if the conditions outlined below are met. Credits may be added, but cannot exceed 80%.

IMPORTANT: The buffer zone distance is a minimum of 8 metres regardless of the buffer zone credits available

Table XII Buffer Zone Credits and Conditions

Credit Type	Buffer Zone Distance Reduction (%)	Condition
Tarp	10-30 %	See www.tarpcredits.epa.gov for a list of tarps that have been tested and determined by the US EPA to qualify for buffer reduction credits. Only tarps listed on this website qualify for buffer reduction credits.
Soil organic content	10%	If the organic content of soil in the application block is ≥1%-2%.
	20%	If the organic content of the soil in the application block is >2%3%.
	30%	If the organic content of the soil in the application block is >3%.
Soil temperature	10%	If the soil temperature is measured to be 10°C or less. Temperature measurements must be recorded at the application depth or at a soil depth of 30 cm, whichever is shallower.
Soil clay content	10%	If the clay content of the soil in the application block is greater than 27%.

Example of buffer calculations if a credit is applicable
If the buffer zone is 15 metres, 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 1 0% (i.e. reduced by 1.5 metres based on the following calculation: 15 metres – [15 metres x 10%] = 13.5 metres).

If the buffer zone is 15 metres 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 3 metres based on the following calculation: 15 metres - (15 metres x 20%) = 12 metres.

EMERGENCY PREPAREDNESS AND RESPONSE MEASURES:
If the buffer zone is 8 meters, then the Emergency Preparedness and Response Measures are not applicable.

If any of the conditions outlined in Table XIII apply, either the directions for Fumigant Site Monitoring or the directions for Response Information for Neighbours must be followed:

Table XIII Triggers for Emergency Preparedness and Response Measures

The Emergency Preparedness and Response Measures are triggered if	**Buffer zone distance is**	**and**	**Residences and businesses are located**
	>8 to ≤ 30 m		Within 15 m from the outer edge of the buffer zone
	>30 to ≤ 60 m		Within 30 m from the outer edge of the buffer zone
	>60 to ≤ 90 m		Within 90 m from the outer edge of the buffer zone
	>90 m or if buffer zones overlap		Within 90 m from the outer edge of the buffer zone

Fumigation Site Monitoring

From the start of the fumigant application until the Buffer Zone Period expires, the applicator must monitor for sensory irritation (tearing, burning of the eyes or nose) 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:

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

Implement the emergency response plan stated in the Fumigation Management Plan immediately if a handler conducting air monitoring experiences sensory irritation.

Response Information for Neighbours

The applicator 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 no more than **4 weeks**. If the application does not occur when specified, the information must be delivered again.

The response information must include:

- The location of the application block.
- The fumigant(s) applied including the active ingredient, name of the fumigant product(s), and the Product Registration Number.
- Contact information for the applicator and property owner/operator.
- Time period in which the fumigation is planned to take place.
- 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 neighbours can be accomplished through mailings, door hangers, or other methods that will effectively inform people in residences and businesses within the required distance from the edge of the buffer zone.

EMERGENCY RESPONSE PLAN:

The applicator must include in the Fumigation Management Plan a written emergency response plan that identifies:

- evacuation routes,
- locations of telephones,
- contact information for first responders,
- local and provincial health and environment authorities, and
- emergency procedures/responsibilities (for example, 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.

FUMIGATION MANAGEMENT PLAN

Prior to the start of application, the applicator must verify that a site-specific Fumigation Management Plan (FMP) exists for each application block.

The Fumigation Management Plan must be prepared by the applicator or the site owner/operator.

The applicator must verify in writing (sign and date) that the site-specific Fumigation Management Plan(s) reflects current site conditions before the start of the application.

The applicator must ensure the Fumigation Management Plan is at the application block during all handling activities.

In addition, the applicator must complete a Post-Application Summary within 30 days after the application is complete.

Instructions for Preparation of a Fumigation Management Plan Each site-specific Fumigation Management Plan must contain the following elements:

1. *Applicator information*: name, phone number, certificate/license number, date of certification/licensing, specify if commercial or private applicator, employer name, and employer address.
2. *General site information*:
   - Application block location, address or global positioning system (GPS) coordinates.
   - Name, address, and phone number of owner/operator of the application block.
   - Map, aerial photo, or detailed sketch showing:
     - application block location,
     - application block dimensions,
     - buffer zones dimensions,
     - property lines,
     - roadways, rights-of-ways, sidewalks, permanent walking paths and bus stops,
     - nearby application blocks,
     - surrounding structures (occupied and non-occupied),
     - locations of Buffer Zone signs, and
     - locations of difficult to evacuate sites with distances from the application site.

3. *General application information*:
   - Target application date/window
   - Fumigant product name of fumigant
   - Product Registration Number

4. *Tarp plan* (if tarps are used):
   - Schedule for checking tarps for damage, tears, and other problems
   - Equipment/methods used to perforate tarps
   - Target dates for perforating tarps
   - Target dates for removing tarps

5. *Soil Conditions*:
   - Description of soil texture and moisture in application block
   - Method used to determine soil moisture
   - Soil temperature measurements (only required if air temperatures were above 37ºC in any of the days prior to the application)

6. *Buffer zones*:
   - Application method
   - Injection depth (if applicable)
   - Application rate from the buffer zone look-up table on label
   - Application block size from the buffer zone look-up table on label
   - Buffer zone credits applied and measurements taken (if applicable)
   - Buffer zone distance
   - Description of areas in the buffer zone that are not under the control of the owner/operator of the application block. If buffer zones extend onto areas not under the control of the owner, the written agreement must be attached to the Fumigation Management Plan.

7. Details of the *Emergency Response Plan* as described in the Emergency Response Plan section of this label.

8. *Posting of Fumigant Treated Area and Buffer Zone*:
   - Person(s) who will post and remove (if different) Fumigant Treated Area and Buffer Zone signs

9. *Emergency Preparedness and Response Measures* (if applicable):
   - Fumigant site monitoring (if applicable):
     - When and where it will be conducted
   - Response information from neighbours (if applicable):
     - List of residences and businesses informed
     - Name and phone number of person providing information
     - Method of providing the information

10. *Handler (including applicator) Information and Personal Protective Equipment*:
    - Name, address and phone numbers of handlers
    - Names, addresses, and phone numbers for employers of handlers
    - Date of certification/licensing recognized by the provincial or territorial pesticide regulatory agency for each handler
    - Applicable handler personal protective equipment.

11. *Air monitoring plan*:

- Indicate whether operations will cease, or continue with use of an air-purifying respirator, in the case sensory irritation is experienced
- For monitoring the breathing zone:
  - representative handler tasks to be monitored
  - monitoring equipment to be used
  - timing of the monitoring

12. *Good Agricultural Practices* (GAPs):
    - Identify applicable mandatory Good Agricultural Practices

13. *Pesticide product labels and material safety data sheets* (MSDS) :
    - Ensure that pesticide product labels and material safety data sheets are on-site and readily available for employees to review.

Instructions for Preparation of Post-Application Summary

The Post-Application Summary must contain the following elements:

1. *Application Information*
- Actual date and time of the application
- Application rate
- Size of application block

2. *Weather conditions*
- Summary of the weather during application and the 48-hour period after the application is complete, including:
  - wind speed, and
  - air stagnation advisory (if applicable).

3. *Tarp damage and repair information* (if applicable):
- Date of tarp damage discovery
- Location and size of tarp damage
- Description of tarp, tarp seal and/or tarp equipment failure
- Date and time of tarp repair completion

4. *Tarp perforation/removal details* (if applicable):
- Date and time tarps were perforated
- Date and time tarps were removed
- Record if tarps were perforated and/or removed early (as per conditions specified on the label). Describe the conditions that caused early tarp perforation and/or removal.

5. *Complaint details* (if applicable):
- Person filing complaint (for example, on-site handler, person off-site)
- If off-site person, name, address, and phone number of person filing complaint
- Description of control measures or emergency procedures followed after complaint

6. Description of *incidents, equipment failure, or other emergency and emergency procedures* followed (if applicable).

7. *Air monitoring results*:
- When sensory irritation was experienced:
  - Date, time, location, and handler task/activity where irritation was observed
  - Resulting action (for example, implement emergency response plan, cease operations, continue operations with air-purifying respirators)
- When using a direct read detection device:
  - Sample date(s), time(s), location(s), and concentration(s)

- Handler task/activity monitored (if applicable)
- Resulting action (for example, cease operations, continue operations with air-purifying respirators)

8. *Fumigant Treated Area and Buffer Zone Signs*:
   - Dates of posting and removal
9. *Deviations from the Fumigation Management Plan*
   - For example, changes in emergency response actions, changes in handler information, changes in handlers responsible for completing emergency tasks, and changes in communication between applicator, owner/operator, and other handlers.

RECORD KEEPING PROCEDURES

The owner/operator of the application block as well as the applicator must keep signed copies of the site-specific Fumigation Management Plan and the Post-Application Summary for 2 years from the date of application.

NOTICE TO USER:

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.