



(2-3-2)

# COMPANION<sup>®</sup>

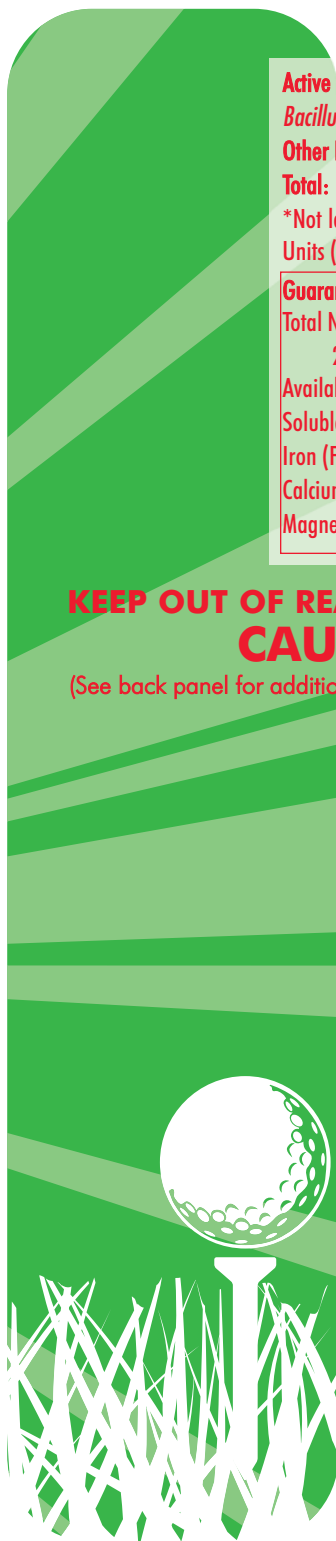
Liquid Biological Fungicide

For Hydroponics Use

- Liquid Biological Fungicide for use in Hydroponics, Soilless Mix Hydro Gardens and Soilless Gardens
- CONCENTRATE
- For Prevention, Control and Suppression of Soil and Foliar Diseases
- Activates ISR (Induced Systemic Resistance) in Plants



Another quality product from:  
 Growth Products, Ltd.  
 PO Box 1252, White Plains, NY 10602 USA  
 Questions? Call (800) 648-7626  
[www.growthproducts.com](http://www.growthproducts.com)  
[questions@growthproducts.com](mailto:questions@growthproducts.com)



**Active Ingredient:**  
*Bacillus subtilis* GB03 ..... 00.03%  
**Other Ingredients:** ..... 99.97%  
**Total:** ..... 100.00%  
 \*Not less than 5.5 X 10<sup>10</sup> Colony Forming Units (CFU) per gallon

**Guaranteed Analysis:**  
 Total Nitrogen (N) ..... 2%  
     2% Protein Hydrolysate Nitrogen  
 Available Phosphate (P<sub>2</sub>O<sub>5</sub>) ..... 3%  
 Soluble Potash (K<sub>2</sub>O) ..... 2%  
 Iron (Fe) ..... 0.06%  
 Calcium (Ca) ..... 1%  
 Magnesium (Mg) ..... 0.5%

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

(See back panel for additional precautionary statements)

EPA Registration No. 71065-3  
EPA Establishment No. 71065-NY-001

Net Contents:  1 Gallon  2.5 Gallon  5 Gallon

**Hydroponics**  
**(2-3-2)**  
**COMPANION® LIQUID BIOLOGICAL FUNGICIDE**

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**GENERAL INFORMATION FOR HYDROPONICS**

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- Use on Food Crops
- For Prevention, Control and Suppression of Root Rot Diseases
- Activates the Plant's Defense / Immune System (ISR)
- A Rhizosphere Bacterium
- Quickly Establishes Beneficial Colonies on Roots and Leaves
- Improves Nutrient Uptake
- Stimulates Healthier Roots and Accelerates Plant Growth

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**DIRECTIONS FOR USE**

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It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

**AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE), notification to workers, and Restricted-Entry Interval (REI). The requirements in this box only apply to the uses of this product that are covered by the Worker Protection Standard.

For hydroponic uses there is a restricted entry of zero (0) hours for this product.

**Product Description:**

Companion® Liquid Biological Fungicide for the prevention, suppression and control of plant diseases on a wide range of food crops, including fruiting vegetables, leafy crops and herbs. Companion® Liquid Biological Fungicide contains the active ingredient *Bacillus subtilis* GB03 which quickly colonizes the developing root system. Companion® Liquid Biological Fungicide provides control of root diseases such as *Rhizoctonia*, *Pythium*, *Fusarium*, *Sclerotinia*, *Botrytis* and *Phytophthora*. Companion® Liquid Biological Fungicide can be successfully used in any Hydroponics System, Soilless Mix Hydro Gardens, Nutrient Film Technique and Soil Gardens to improve plant vigor, root system and yield. Companion® Liquid Biological Fungicide will encourage and maintain healthy white roots and increase root mass. *Bacillus subtilis* GB03 will flourish in this environment, where it quickly adapts and establishes itself on the root systems of plants. It is antagonistic to Blue-Green Algae (Cyanobacteria) growth. It will break down root zone debris keeping roots clean and free of disease.

Use Companion® Liquid Biological Fungicide from the time of seeding and transplant and continued through the plant's lifecycle, for the control of problem fungal and bacterial diseases. Companion® Liquid Biological Fungicide is most effective when applied as a preventative treatment. Use Companion® Liquid Biological Fungicide in combination with reduced rates of chemical fungicides to enhance and prolong disease control. Companion® Liquid Biological Fungicide is easily injected through all systems either by proportioners or through standard fertilizer injectors.

**Modes of Action:**

Companion® Liquid Biological Fungicide has multiple modes of action in preventing and controlling plant diseases. It produces a broad-spectrum antibiotic (Iturin) that disrupts pathogen cell-wall formation. It is a competitive and fast colonizing rhizosphere bacterium, which occupies the plant's root hairs preventing the growth and antagonistic effects of soil borne pathogens. Companion® Liquid Biological Fungicide's *Bacillus subtilis* GB03 is known to stimulate phytohormones, which trigger the plant's systemic resistance to disease ISR (Induced Systemic Resistance), the defense mechanisms of the plant, for prolonged periods of time. It is non-selective to plant materials.

**PGPR (Plant Growth-Promoting Rhizobacteria):**

Companion® Liquid Biological Fungicide's *Bacillus subtilis* GB03 is classified as a Plant Growth-Promoting Rhizobacteria (PGPR). PGPR are free-living bacteria that have beneficial effects on plants as they enhance seed emergence, colonize roots, and stimulate growth.

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## INTEGRATED PEST (DISEASE) MANAGEMENT (IPM)

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Integrate Companion® Liquid Biological Fungicide into an overall disease management program whenever fungicide use is necessary. Companion® Liquid Biological Fungicide is an important tool for hydroponics systems to manage disease, which will result in healthy and more vigorous growth. This will reduce the susceptibility to disease and result in an overall reduction in the use of chemical fungicides. Companion® Liquid Biological Fungicide is not harmful to beneficial insects.

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### RESISTANCE MANAGEMENT

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Companion® Liquid Biological Fungicide is an important tool to prevent the development of resistant pathogens that often occurs with chemical fungicide products. Companion® Liquid Biological Fungicide's multiple and unique modes of action inhibit the pathogen's ability to develop resistance. Use Companion® Liquid Biological Fungicide in combination with lower rates of chemical fungicide for improved efficacy and /or in rotation with chemical fungicides to reduce chemical applications.

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### STORAGE & HANDLING

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#### Storage Requirements:

DO NOT FREEZE. Keep out of direct sun light or heat source to prevent overheating of liquid. Sun & Air Sealed Box: Because of the unique character of both the solution and microbial spores, Companion® Liquid Biological Fungicide has been packaged in our SUN & AIR SEALED container, which protects from UV radiation that can affect product stability and possible contamination from air borne spores.

#### To Dispense:

SHAKE WELL before use or before mixing with water. Remove plastic carton lid. A dispensing tap is tucked inside the carton. Pull out inner plastic container neck with cap on. Remove cap and immediately screw on tap tightly. To open tap, turn to left side. No air will be allowed into this container during use while this tap is in place. DO NOT leave container open.

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### MIXING INSTRUCTIONS

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#### Tank Mixing:

SHAKE WELL before use and before mixing with water. Companion® Liquid Biological Fungicide must be diluted with water prior to use. It can be used in all commonly used spray and injection equipment. Special care should be taken when tank mixing. Be sure that all tanks have been cleaned before use. Add water to 3/4 level of the tank followed by fertilizer addition. Mix thoroughly, add Companion® Liquid Biological Fungicide and continue to mix.

Companion® Liquid Biological Fungicide can be mixed with most high quality fertilizers, micronutrients, organic materials, wetting agents, surfactants and most fungicides, herbicides or insecticides. Maintain agitation while spraying. DO NOT let stand overnight. Companion® Liquid Biological Fungicide can be tank mixed and applied with both systemic and contact fungicides as part of a regular growth and maintenance program.

#### Compatibility:

Companion® Liquid Biological Fungicide is compatible with most high quality fertilizers, micronutrients, organic materials, wetting agents, and surfactants. Companion® Liquid Biological Fungicide can also be mixed and applied with Contact and Systemic Fungicides. Do NOT mix with copper based fungicides, concentrated acids such as sulfuric acid, solvents, oxidizing agents or bactericides. Do not mix with products with a pH below 4 or above 9. Be sure to apply all of tank mix solution the same day to assure viability of spores. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures. Consult your Growth Products representative for more information on Companion® Liquid Biological Fungicide compatibility.

**COMPANION® LIQUID BIOLOGICAL FUNGICIDE DOES NOT CONTAIN ANY ANIMAL OR WASTE PRODUCTS AND IS FREE OF HEAVY METALS.**

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### PREHARVEST INTERVAL – AGRICULTURAL USE

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Companion® Liquid Biological Fungicide can be applied up to and including the day of harvest.

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### USE SITES

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Companion® Liquid Biological Fungicide is a broad-spectrum fungicide that can be used on hydroponics grown and soil grown crops to control a variety of diseases.

HYDROPONICS SYSTEMS			
Diseases	Crop	Product Rates	Frequency & Notes
<i>Aspergillus spp.</i> <b>Black Root Rot, Early Blight</b> <i>Alternaria spp.</i> <b>Crown Rot, Damping-off Fungus, Gray Mold, Leaf blight</b> <i>Botrytis cinerea</i> <b>Gummy Stem Blight</b> <i>Didymella bryoniae</i> <b>Root Rot</b> <i>Pythium spp.</i> <b>Late Blight, Blackeye/Buckeye Rot in Tomatoes</b> <i>Phytophthora spp.</i> <b>Wilt</b> <i>Fusarium oxysporum</i> <b>Root Rot, Bottom / Stem Rot</b> <i>Rhizoctonia solani</i> <b>Blight</b> <i>Sclerotinia minor</i> <b>Bacterial Leaf spot</b> <i>Xanthomonas campestris</i> <b>Golovinomyces cichoracearum, formerly called Erysiphe cichoracearum</b> <i>Powdery Mildew</i>	Seed Treatment	Mix 4 fl. oz. in 1 gallon of water. (125 ml in 4 Liters water)	Soak seeds / plugs with a solution before placing them in growing trays
	Herbs, Leafy Crops, Tomatoes, Fruiting Vegetables	Charging Rate: 1 fl. oz. per 30 gallons water in nutrient tank (30 ml / 120 liters water)	Apply at time of placement in trays. Run through system.
		Recharging Rate: 1 fl. oz. per 50 gallons of water. (30 ml per 200 liters water)	Replenish every time water is added or every 5 – 7 days.

**Common Disease Names:**

Damping Off, Root Rot, Wilt, Gummy Stem Blight, Early Blight, Leaf Blight, Black Rot, Gray Mold and Angular Leaf Spot.

GROWING SYSTEMS		
Closed Re-circulating System for Ebb and Flow in rock wool and peat / perlite mixtures, and Nutrient Film Technique	<b>Charging Rate:</b> Mix 1 fl. oz. per 30 gallons water. (30 ml / 120 liters) <b>Recharging Rate:</b> 1 fl. oz. per 50 gallons of water. (30 ml per 200 liters water)	The water is usually changed weekly. Apply Companion® Liquid Biological Fungicide after each water change. Be sure to clean mix tank weekly. Pre-soak transplants in same solution mix.
Open Systems	Mix 16 fl. oz. per 100 gallons of nutrient mix (500 ml / 400 liters). For smaller volumes mix 1 tsp. per gallon.	Apply the solution with Companion® Liquid Biological Fungicide at the end of the watering cycle so that it stays in the system longer. Repeat the application every 14 to 28 days, or by checking the quality of the roots.
Soiless Mix Hydro Gardens (Aggregate Systems), Trickle Feed Method and Soil Gardens For peat moss, perlite, vermiculite, sand, gravel, clay pebbles, foam chips and rockwool medias.	Mix 16 fl. oz. per 100 gallons of nutrient mix (500 ml / 400 liters).	Apply every 14 – 28 days or by checking the quality of the roots. Apply the solution with Companion® Liquid Biological Fungicide at the end of the watering cycle so that it stays in the system longer.

SET INJECTION RATIO AT:		
1:100	1:200	Frequency
Companion® Liquid Biological Fungicide	Companion® Liquid Biological Fungicide	
Add 16 fl. oz. per 1 gallon of Stock Water (480 ml / 4 liters of stock water).	Add 32 fl. oz. into 1 gallon of Stock Water (960 ml / 4 liters of stock water).	Apply every 14 – 28 days.

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## CHEMIGATION

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### General Requirements -

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

### Specific Requirements for Chemigation Systems Connected to Public Water Systems -

- 1) Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- 2) Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- 3) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 4) The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- 5) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- 6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- 7) Do not apply when wind speed favors drift beyond the area intended for treatment.

### Specific Requirements for Sprinkler Chemigation -

- 1) The system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- 2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 3) 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.
- 4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- 5) The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- 6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being filled with a system interlock.
- 7) Do not apply when wind speed favors drift beyond the area intended for treatment.

### Specific Requirements for Flood (Basin), Furrow and Border Chemigation

- 1) Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.
- 2) The systems utilizing a pressurized water and pesticide injection system must meet the following requirements:

- a. The system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- b. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- c. 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.
- d. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- e. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- f. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being filled with a system interlock.

#### **Specific Requirements for Drip (Trickle) Chemigation -**

- 1) The system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- 2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 3) 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.
- 4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- 5) The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- 6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being filled with a system interlock.

#### **Application Instructions -**

- 1) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues may cause product to lose effectiveness or strength.
- 2) Determine the treatment rates as indicated in the directions for use and make proper dilutions. Product can be applied continuously or at any time during the water application.
- 3) Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required. The product will immediately go into suspension without any required agitation.

#### **Notice - Read carefully conditions of sale and limited warranty statement.**

As its sole express warranty, Growth Products, Ltd., warrants that this product conforms to the microbial description on the label and is reasonably fit for purposes stated on the label only when used in accordance with directions and instructions specified on the label, subject to the inherent risks set forth above. Only as permitted by applicable law, in the event of a breach of this limited warranty, Growth Products, Ltd. shall not be liable for consequential damages subject to applicable law. Growth Products, Ltd. neither makes nor authorizes any of its distributors to make any warranty of fitness or merchantability, guaranty or representation, express or implied, concerning this material. Buyer assumes the responsibility to handle, use and store this product in accordance with the safety instructions and use directions contained on the label. To the extent consistent with applicable law, the Buyer/User purchases this product to the foregoing Conditions of Sale and Warranty which may be varied only by a written agreement signed by a duly authorized representative of Growth Products, Ltd., and if these terms are not acceptable, return all product to the place of purchase, unopened for a full refund.

Information regarding the contents and levels of metals in this product is available on the Internet at <http://www.aapfco.org/metals.htm>



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### STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store in a dry place out of direct sunlight and away from heat sources. Keep from overheating or freezing.

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

**Container Disposal:** Non-refillable container. Do not reuse or refill this container. Triple rinse (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances.

### PRECAUTIONARY STATEMENTS

**Hazards to Humans and Domestic Animals:** Caution. Causes moderate eye and skin irritation. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

**Personal Protective Equipment (PPE):** Applicators and other handlers must wear long-sleeved shirt and long pants, water-proof gloves, and shoes plus socks. Mixer/loaders and applicators must wear a dust/mist-filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization. Follow manufacturer's instructions for cleaning / maintaining PPE. Keep and wash PPE separately from other laundry.

**User Safety Recommendations:** Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**Environmental Hazards:** Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean highwater mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-water.

### FIRST AID

If in eyes	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
If on skin or clothing	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15 – 20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.