



## PRE-PLANT SOIL TREATMENT Controls soil-borne plant pathogens

### SPECIMEN LABEL

#### ACTIVE INGREDIENTS:

Hydrogen Peroxide .....	18.50%
Peroxyacetic Acid .....	12.00%
OTHER INGREDIENTS: .....	69.50%
TOTAL: .....	100.0%

**STRONG OXIDIZING AGENT  
KEEP OUT OF REACH OF CHILDREN  
DANGER - PELIGRO**

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

#### First Aid

##### If in eyes

- Hold eye open and rinse slowly and gently with water for 15–20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.

##### If 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 treatment advice.

##### If swallowed

- Call poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by the poison control center.
- Do not give anything by mouth to an unconscious person.

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

#### NOTE TO PHYSICIAN

Probable mucosal damage may contraindicate the use of gastric lavage.

#### PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**DANGER: CORROSIVE.** Causes irreversible eye damage and skin burns. May be fatal if inhaled or absorbed through skin. Do not get in eyes, on skin, or on clothing. Harmful if swallowed. Do not breathe vapors or spray mist. When exposed to vapors or spray mist wear a respirator with an organic vapor removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval prefix TC-14G), or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any N, R, P, or HE prefilter.

Wear chemical resistant goggles, rubber gloves and protective clothing when handling this product. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove contaminated clothing and wash before reuse.

#### FOR COMMERCIAL USE

Net Contents:  
5, 30, 55, 275 gallons

EPA Registration No. 70299-18

V10

Sold by BioSafe Systems LLC  
22 Meadow Street, East Hartford, CT 06108  
1-888-273-3088 (toll-free) [www.biosafesystems.com](http://www.biosafesystems.com)



#### PHYSICAL AND CHEMICAL HAZARDS

**Corrosive.** Strong oxidizing agent. Do not use in concentrated form. Mix only with water in accordance with label instructions. Never bring concentrate in contact with other pesticides, cleaners or oxidative agents.

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and handlers must wear coveralls over long-sleeved shirt, long pants, and chemical resistant footwear plus socks. When mixing and loading wear a chemical resistant apron. For overhead exposure wear chemical-resistant headgear. Wear protective eyewear (goggles, face shield, or safety glasses), and chemical resistant gloves. When cleaning equipment wear a chemical resistant apron.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not reuse them.

#### USER SAFETY RECOMMENDATIONS

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

#### ENVIRONMENTAL HAZARDS

This pesticide is toxic to birds and fish. For terrestrial uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

This product is highly toxic to bees and other pollinating insects exposed to direct contact on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees or other pollinating insects are actively visiting the treatment area. Do not apply this product or allow it to drift to crops where beneficial are part of an Integrated Pest Management strategy.

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

**DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product through any irrigation system unless the chemigation instructions on this label are followed. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. For any requirements specific to your state or tribe, consult the State or Tribal agency responsible for pesticide regulation.

**AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, 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) and Restricted-Entry Interval (REI). The requirements in this box apply to the uses of this product that are covered by the Worker Protection Standard.

Personal Protective Equipment (PPE) – Applicators and handlers must wear coveralls over long-sleeved shirt, long pants, and chemical resistant footwear plus socks. When mixing and loading wear a chemical resistant apron. For overhead exposure wear chemical-resistant headgear. Wear protective eyewear (goggles, face shield, or safety glasses), and chemical resistant gloves. When cleaning equipment wear a chemical resistant apron. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instruction exists for washables, use detergent and hot water.

For enclosed environments:

There is a restricted entry of one (1) hour for this product when applied via spraying to surfaces, equipment, structures and non-porous surfaces in enclosed glasshouses and greenhouses. PPE requirement for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water, is coveralls worn over long-sleeved shirt and pants, waterproof gloves and shoes plus socks.

There is a restricted entry of zero (0) hours for pre-plant dip, seed treatment, soil drench, mop, sponge, dip, soak, rinse or other non-spraying application methods when used in enclosed environments such as glasshouses and greenhouses.

For field applications:

There is a restricted entry of zero (0) hours for pre-plant dip, seed treatment, soil drench or other non-spraying application methods.

TerraStart works best when diluted with water containing low levels of organic or inorganic materials. Thoroughly rinse out tank with water before mixing concentrate. TerraStart will readily mix with clean water

and does not require agitation.

**TREATMENT OF PLANT PATHOGENS AND ASSOCIATED DISEASES  
(Not Approved For Use In California)**

**PRE-PLANT SOIL TREATMENT FOR CONTROL/SUPPRESSION OF SOIL BORNE PLANT PATHOGENS/DISEASES IN FIELD GROWN CROPS**

Use TerraStart as a pre-plant non-fumigant soil treatment for control of soil borne plant pathogens including plant pathogenic bacteria, fungi, fungi-like organisms and nematodes. TerraStart can be injected directly into the water applied through drip or sprinkler irrigation systems or made as a pre-mix solution to be applied as a soil drench.

**SOIL DRENCH/CHEMIGATION FOR CONTROLLING SOILBORNE PLANT PATHOGENS**

Use TerraStart to suppress and control soilborne plant pathogens and their associated diseases such as Fusarium (root rot) - Phytophthora (blight and root rots) - Pythium - Rhizoctonia - Ralstonia solanacearum (brown rot, bacterial wilt), - Sclerotinia sclerotiorum (white mold) - Sclerotium rolfsii - Thielaviopsis - Verticillium.

**AS A DIRECT INJECT APPLICATION THROUGH DRIP IRRIGATION SYSTEMS**

Prior to an application of TerraStart, pre-irrigate soil to 80-90% field capacity. Inject TerraStart directly into the water of the drip system at a 1:265–1:132 dilution rate (3.8 to 7.6 gallons of TerraStart per 1,000 gallons of water; equivalent to 500–1,000 ppm of peroxyacetic acid). Consider using higher rate (1:132 dilution) when field has history of high disease pressure. Apply approximately 3,000 to 6,000 gallons of finished TerraStart solution per treated acre. Refer to chart below for application recommendations based on soil type. Applications should be made at a minimum of 48 hours prior to planting/transplanting to allow any residual TerraStart to dissipate in the soil. Run irrigation system to ensure TerraStart has been flushed from system. Test strip can be used to ensure peroxyacetic acid concentration is < 50 ppm in the water before using the water for irrigation in the presence of plants.

**AS A DIRECT INJECT APPLICATION THROUGH SPRINKLER IRRIGATION SYSTEMS**

Prior to an application of TerraStart pre-irrigate soil to 80–90% field capacity. Inject TerraStart directly into the water of the sprinkler system at a 1:265–1:132 dilution rate (3.8 to 7.6 gallons of TerraStart per 1,000 gallons of water; equivalent to 500–1,000 ppm of peroxyacetic acid). Consider using higher rate (1:132 dilution) when field has history of high disease pressure. Apply approximately 3,000 to 6,000 gallons of finished TerraStart solution per treated acre. Refer to chart below for application recommendations based on soil type. Applications should be made at a minimum of 48 hours prior to planting/transplanting to allow any residual TerraStart to dissipate in the soil. Run irrigation system to ensure TerraStart has been flushed from system. Test strip can be used to ensure peroxyacetic acid concentration is < 50 ppm in the water before using the water for irrigation in the presence of plants.

**DIRECT INJECT APPLICATION RATES**

Soil Type	Total Number of Gallons of TerraStart Concentrate/Treated-Acre		Gallons of Water to be Used with TerraStart per Treated Acre
	1:132	1:265	
Light (Sandy/Loam)	23.0	11.5	3,000 gallons
Medium (Loam)	34.0	17.0	4,500 gallons
Heavy (Loam/Clay)	45.5	22.5	6,000 gallons

**To determine injection time in minutes:**

Gallons of finished TerraStart solution per acre (based on soil type) X Number of Acres  
Irrigation pump flow rate in Gallons per Minute (GPM)

**AS A SOIL DRENCH**

Pre-mix TerraStart at a 1:256–1:132 dilution rate or 49.0–98.0 fl. oz. of TerraStart per 100 gallons of water; equivalent to 500–1,000 ppm peroxy-acetic acid. Refer to chart below for recommended application rates based on soil types and size of area to be treated. Consider using higher rate (1:132 dilution) when field has history of high disease pressure. Applications should be made at a minimum of 48 hours prior to planting/transplanting to allow any residual TerraStart to dissipate in the soil.

## SOIL DRENCH APPLICATION RATES

Soil Type	Total Number of Gallons of TerraStart Concentrate/Treated-Acre				Gallons of Water to be Used with TerraStart per Treated Acre	
	1:132		1:265		Per 1,000 sq. ft.	Per Treated Acre
	fl. oz./1,000 sq. ft.	Gallons/Treated Acre	fl. oz./1,000 sq. ft.	Gallons/Treated Acre		
<b>Light (Sandy/Loam)</b>	68 fl. oz.	23 gallons	34 fl. oz.	11.5 gallons	70 gallons	3,000 gallons
<b>Medium (Loam)</b>	97 fl. oz.	34 gallons	48 fl. oz.	17 gallons	100 gallons	4,500 gallons
<b>Heavy (Loam/Clay)</b>	136 fl. oz.	45 gallons	68 fl. oz.	22.5 gallons	140 gallons	6,000 gallons

### CHEMIGATION INSTRUCTIONS

#### General Requirements -

1. Apply this product only through a drip system or sprinkler system, including flood, and drip (trickle) irrigation systems.
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.
6. Posting of areas to be chemigated is required when 1) any part of a treated area is within 300 feet of sensitive areas such as residential areas, labor camps, businesses, day care centers, hospitals, in-patient clinics, nursing homes or any public areas such as schools, parks, playgrounds, or other public facilities not including public roads, or 2) when the chemigated area is open to the public such as golf courses or retail greenhouses.
7. Posting must conform to the following requirements. Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive areas. When there are no usual points of entry, signs must be posted in the corners of the treated areas and in any other location affording maximum visibility to sensitive areas. The printed side of the sign should face away from the treated area towards the sensitive area. The signs shall be printed in English. Signs must be posted prior to application and must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place indefinitely as long as they are composed of materials to prevent deterioration and maintain legibility for the duration of the posting period.
8. All words shall consist of letters at least 2.5 inches tall, and all letters and the symbol shall be a color which sharply contrasts with their immediate background. At the top of the sign shall be the words KEEP OUT, followed by an octagonal stop sign symbol at least 8 inches in diameter containing the word STOP. Below the symbol shall be the words PESTICIDES IN IRRIGATION WATER.

#### 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
4. 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.
6. 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.
7. 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.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

#### Specific Requirements for Flood 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.
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.
4. Do not apply TerraStart in conjunction with any other pesticides or fertilizers; this has the potential to cause reduced performance of the product. Avoid application in this manner.

**STORAGE AND DISPOSAL**

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

**Pesticide Storage:** Store in original containers in a cool, well-vented area, away from direct sunlight. Do not allow product to become overheated in storage. This may cause increased degradation of the product, which will decrease product effectiveness. In case of spill, flood area with large quantities of water. **Pesticide Disposal:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If wastes cannot be disposed of according to label directions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance. **Container Handling: (Containers equal to or less than 5 gallons):** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 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. **Container Handling: (Containers greater than 5 gallons):** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Offer for recycling if available.

**WARRANTY  
CONDITIONS OF SALE AND LIMITATION OF WARRANTY  
AND LIABILITY**

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product should be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of BIOSAFE SYSTEMS LLC or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold BIOSAFE SYSTEMS and Seller harmless for any claims relating to such factors.

BIOSAFE SYSTEMS warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above when used in accordance with directions under normal use conditions. This warranty does not extend to the use of the product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or BIOSAFE SYSTEMS, and Buyer and User assume the risk of any such use. BIOSAFE SYSTEMS MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, NOR ANY OTHER EXPRESSED OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

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For additional information on TerraStart®, call us toll-free at 1.888.273.3088.

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