



# ZeroTol<sup>®</sup>

Broad Spectrum Algaecide/Fungicide

## SPECIMEN LABEL AND MSDS

### PREVENTATIVE TREATMENT FOR ORNAMENTAL PLANTS AND TURF

A treatment for the prevention and control of horticultural diseases in Commercial Greenhouses, Garden Centers, Landscapes, Nurseries, Interiorscapes, Golf Courses, Lawns, Athletic Fields, and Commercial Turf.

### FOR HORTICULTURAL AND COMMERCIAL USE ONLY

#### ACTIVE INGREDIENT:

Hydrogen Dioxide: 27%

OTHER INGREDIENTS: 73%

TOTAL: 100%

### 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 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.

##### If inhaled

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, give them artificial respiration, preferably mouth-to-mouth if possible.

- Call poison control center or doctor for treatment advice.

*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.

Sold by: BioSafe Systems LLC

22 Meadow Street East Hartford, CT 06108

EPA Registration No. 70299-1

EPA Establishment No. 60156-IL-001

### PRECAUTIONARY STATEMENTS HAZARDS TO HUMAN AND DOMESTIC ANIMALS DANGER:

**Corrosive:** Concentrate causes irreversible eye damage. Concentrate may be fatal if swallowed. Concentrate causes skin irritation or temporary discoloration on exposed skin. Do not breathe vapor of concentrate. Do not get concentrate in eyes, on skin or on clothing. Wear protective eyewear such as goggles or face shield. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse.

#### PERSONAL PROTECTIVE EQUIPMENT (PPE):

When handling concentrate wear protective eyewear (goggles or face shield) and rubber gloves. Applicators and handlers must wear coveralls over long-sleeved shirt, long pants, and chemical resistant footwear plus socks. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions exist for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

#### USER SAFETY RECOMMENDATIONS:

Users should wash hands thoroughly with soap and water before eating, drinking, chewing gum, using tobacco or using the toilet. 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:

**For Terrestrial uses:** Keep out of lakes, ponds and streams. This pesticide is toxic to birds and fish. Do not apply directly to water, or to areas where surface water is present or to inter-tidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate.

This product is highly toxic to bees and other beneficial 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 are actively visiting the treatment area. Do not apply this product or allow it to drift to crops where beneficials are part of an Integrated Pest Management strategy.

#### PHYSICAL AND CHEMICAL HAZARDS:

Strong oxidizing agent. Corrosive. 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.

#### 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 in a way that will contact workers or other persons, either directly or indirectly through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

#### 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.

**There is a restricted entry of zero (0) hours for this product.**

#### **Non-Agricultural Use Requirements**

The requirements in this box apply to uses of this product that are not within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

**Keep unprotected persons out of treated areas until sprays have dried.**

#### **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. Do not store in a manner where cross-contamination with other pesticides or fertilizers could occur.

#### **PESTICIDE DISPOSAL:**

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Open dumping is prohibited. 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 DISPOSAL:**

Triple rinses (or equivalent). Then offer for recycling or dispose in a sanitary landfill, or incineration, if allowed by state and local authorities by burning, stay out of smoke.

\* Preventative treatment for suppressing fungal diseases including (treats/controls/prevents): Algae – Alternaria – Anthracnose – Aphanomyces – Black Spot-Boytrytis (grey mold) – Downy Mildew – Erwinia Fusarium (root rot) – Leaf Spot – Phytophthora (blights, rots) – Plasmopara – Powdery Mildew – Pseudomonas – Pythium – Rhizoctonia –

Rust – Scab – Smut – Thielaviopsis – Uncinula (powdery mildew) – Xanthomonas – Wilts & Blights.

\* May be used as a fungicide on bedding plants, flowering plants, roses, poinsettia, ornamentals, nursery stock, trees, turf, cut flowers, bulbs, cuttings, seedlings, seeds and seedbeds.

\* May be used as a fungicide and algicide on greenhouse structures, benches, pots, watering systems, evaporative coolers, storage rooms, ventilation equipment, floors and other equipment

ZeroTol works by surface contact with the plants and materials being treated. It is important to ensure that all surfaces are thoroughly wetted. ZeroTol does not produce any visible residue, distinct odor or deleterious effects to plants when used in accordance with label directions.

#### **Compatibility:**

Do not use at higher than recommended dilution rates as leaf burn may result. ZeroTol has been designed to provide a balanced source of the active ingredient directly to the plant surface and has been shown to not cause adverse cosmetic effects on most plants. Since we have not tested all plant species, however, it is always advisable to test ZeroTol on a few plants before treating large numbers.

#### **Solution Preparation:**

- ZeroTol works best when diluted with water containing little or no organic or inorganic materials and having a neutral pH. Thoroughly rinse out mixing tank with water before mixing concentrate. ZeroTol will readily mix with clean, neutral water and does not require agitation.

- Mixing Instructions:

1) Check all chemicals to be mixed for their compatibility with ZeroTol.

2) To determine compatibility perform a jar test.

a. Based on planned use rate mix Zeritol with water in a sealable container.

b. Add other chemicals one at a time.

c. Shake container and observe the container for gas bubbles or foaming.

d. Do not mix Zeritol with other products if gas bubbles develop or pressure is noticed in container.

3) Add one-half of the desired volume of water to the mixing or spray tank.

4) Add ZeroTol to water in tank and allow to stand for two minutes.

5) Add additional chemicals to ZeroTol and water in tank.

6) Fill tank with other half of water volume.

\* ZeroTol is formulated with a surfactant for plants having waxy or hairy surfaces. Additional surfactant may be added, if needed for treatment of plants with difficult to reach surfaces.

\* ZeroTol is a strong oxidizing agent and may react with residues of metal-based fungicides or supplements. Care should be used when applying ZeroTol as a foliar spray immediately following foliar applications of metal-based products.

#### **USE RATES AND DIRECTIONS FOR GREENHOUSES:**

**For greenhouse surfaces and equipment applications:** ZeroTol can be used to suppress and control fungi and slime forming algae on greenhouse structures, such as: glazing, plastic, benches, walkways, floors, walls, fan blades, ventilation ducts, watering systems, coolers, storage rooms, structures and equipment.

1) Sweep and remove all plant debris. Use power sprayer to wash all surfaces to remove loose dirt.

2) Use a dilution of 1:300 or 1/2 fl. oz. per gallon of clean water. Use a dilution of 1:50 or 2-1/2 fl. oz. per gallon of clean water if surfaces that are to be treated have not been pre-cleaned with water to remove organic deposits. Additional surfactant may be added, if needed.

3) Apply solution with mop, sponge, power sprayer or fogger to thoroughly wet all surfaces. Allow solution to remain in contact with surfaces for a minimum of 10 minutes, allow to air dry.

4) Heavy growths of algae and fungi may have to be scrubbed off following application. Use a solution of ZeroTol to wash away dead growth.

5) Reapply as often as needed for control.

#### **FOAMING APPLICATIONS:**

Apply ZeroTol as a foam treatment to enhance contact on porous surfaces, vertical surfaces and irregular surfaces such as metal grating and structural steel where contact is difficult to maintain with coarse spray treatments. Add a foaming agent to the spray tank that contains the diluted ZeroTol solution. Apply foam until the surface treated is completely covered. Allow foam treated surface to air dry. Do not rinse.

**For foot bath mats:** Make a solution using 3/4 fl. oz. of ZeroTol per gallon of water and fill foot bath mat to capacity. Change solution as needed.

**For Clean, Non-Porous Surfaces, Pots, Flats, Trays:** Use a dilution of 1:100 to 1:300 or 1-1/4 to 1/2 fl. oz. per gallon of clean water. Spray until runoff. Additional surfactant may be added, if needed.

**Cutting Tools:** Use a dilution of 1:100 to 1:300 or 1-1/4 to 1/2 fl. oz. per gallon of clean water. Soak tools to ensure complete coverage. Additional surfactant may be added, if needed.

**For un-cleaned porous and non-porous surfaces, benches and work areas:** Sweep and remove all plant debris. Use power sprayer to wash all surfaces to remove loose dirt. Use a dilution of 1:50 or 2-1/2 fl. oz. per gallon of clean water if surfaces that are to be treated have not been pre-cleaned with water to remove organic deposits. Additional surfactant may be added, if needed.

**Evaporative coolers:** Treat existing algae and slime contaminated surfaces with a 1:100 dilution. Treat cooler water every week with a dilution of 1:500 or 1/4 fl. oz. for every gallon of cooler water.

**For irrigation systems (flooded floors, flooded benches, recycled water systems, capillary mats, humidification and misting systems):** Treat already contaminated water with a dilution of 1:500 or 1/4 fl. oz. for every gallon of water. Treat clean water with a dilution of 1:10,000 or one gallon of ZeroTol per 10,000 gallons of water.

**For mist propagation of cuttings and plugs:** Inject ZeroTol into misting systems to control / suppress algae, fungi and bacteria disease from becoming established on plant material. Inject ZeroTol using a 1:1000 dilution rate, for four to ten days on a consecutive basis. Reduce concentration to 1:5000 and maintain continuous application throughout propagation cycle. At the first sign of disease, increase the concentration of ZeroTol to 1:1000.

**As a pre-plant dip treatment:** Use ZeroTol for the control / suppression of damping-off, root and stem rot diseases such as Pythium, Phytophthora, Rhizoctonia, Fusarium or Thielaviopsis on ornamental and nursery plants, seed beds, seeds, seedlings, bulbs, or cuttings.

- 1) Use 64 fl. oz. per 50 gallons of water, a dilution of 1:100.
- 2) Immerse plants or cuttings. Remove and allow to drain. Do not rinse.

**As a soil or media drench:** ZeroTol is effective for the control / suppression of soil borne plant diseases such as Pythium, Phytophthora, Rhizoctonia, Thielaviopsis or Fusarium. Use as a soil drench at the time of seeding or transplanting, as well as a periodic drench throughout the plant's life. ZeroTol can also be used on potting soil and growing mediums prior to planting.

- 1) For curative use a dilution of 1:100 or 1-1/4 fl. oz. per gallon of clean water.
- 2) Apply to soil or growing media to the point of saturation.
- 3) Wait fifteen minutes before planting or watering.
- 4) For preventative applications use a rate of 1:500 or 1/4 fl. oz. for every gallon of water.

**As a foliar spray treatment in greenhouses:** ZeroTol works immediately on contact with any plant surfaces for control / suppression of fungi. Apply ZeroTol to ornamentals, bedding plants, flowering plants, shrubs, and trees. To ensure that this contact fungicide is effective, thorough coverage and wetting of the foliage is necessary.

#### **Initial (Curative) Application:**

- 1) Use a dilution of 1:100 or 1-1/4 fl. oz. per gallon of clean water. Do not reuse already mixed solution, make fresh daily.
- 2) Spray, mist or fog plants in early morning or late evening.
- 3) Thoroughly wet all surfaces of plant, upper and lower foliage, including stems, branches and stalks to ensure full contact with plant and flower tissue.
- 4) Apply for one to three consecutive days and then follow directions for preventative treatment after the initial application.

#### **Weekly Preventative Treatment:**

- 1) Use a dilution of 1:300 or 1/2 fl. oz. per gallon of clean water.
- 2) Spray, mist or fog plants.
- 3) Thoroughly wet all surfaces of plant, upper and lower foliage, including stems, branches and stalks.
- 4) Spray every five to seven days as a preventative treatment.
- 5) At the first sign of disease spray daily with a 1-1/4 fl. oz. per gallon of water for three consecutive days and then resume weekly preventative treatment.

**As a foliar spray treatment in the field:** ZeroTol works immediately on contact with any plant surface for control / suppression of disease. Apply ZeroTol to nursery stock such as: woody ornamentals, bedding plants, flowering plants, roses, container plants, azaleas, rhododendrons, conifers, and shade trees. Good coverage and wetting of the foliage is necessary.

#### **Initial (Curative) Application:**

- 1) Use a dilution of 1:100 or 1-1/4 fl. oz. per gallon of clean water. Do not reuse already mixed solution, make fresh daily.
- 2) Spray, mist or fog plants and trees, including applications through irrigation or chemigation systems.
- 3) Thoroughly wet all surfaces of plant, upper and lower foliage, including stems, branches and stalks to ensure full contact with plant and flower tissue.
- 4) Apply for one to three consecutive days and then follow directions for preventative treatment after the initial application.

#### **Weekly Preventative Treatment:**

- 1) Use a dilution of 1:300 or 1/2 fl. oz. per gallon of clean water.
- 2) Spray, mist or fog plants and trees, including applications through irrigation or chemigation systems.

3) Thoroughly wet all surfaces of plant, upper and lower foliage, including stems, branches and stalks.

4) Spray every five to seven days as a preventative treatment.

5) At the first sign of disease spray daily with a dilution of 1:100 or 1-1/4 fl. oz. per gallon of water for three consecutive days and then resume weekly preventative treatment.

**For cut flowers:** Use ZeroTol to prevent fungal diseases such as Botrytis, Downy Mildew and Powdery Mildew on flowers in cold storage or in transit. Apply as a post harvest treatment. Use a dilution of 1:500 or 1/4 fl. oz. per gallon of clean water. Spray flowers after grading and prior to storage or shipment. Repeat weekly for flowers in storage.

**For bareroot nursery stock:** Use ZeroTol to prevent Botrytis on budwood and nursery stock in storage. Use a dilution of 1:100 or 1-1/4 fl. oz. per gallon of water. Dip plants or spray until dripping wet. Repeat weekly if necessary.

#### **USE RATES AND DIRECTIONS FOR TURF:**

##### **For turf applications:**

- Broad spectrum treatment for control of algae, fungi and bacteria on turf.
- For use on all turf types such as commercial turf, lawns, athletic fields and golf course fairways, greens and tees.
- Use ZeroTol to control fungi such as: Anthracnose, Brown Spot, Dollar Spot, Copper Spot, Fairy Ring, Pink Snow Mold, Pythium, Phytophthora, Summer Patch, Rhizoctonia, Scum, Take All Patch, Fusarium Blight, Stripe Smut, Leaf Spot, Algae, Slime Molds and their spores.
- ZeroTol controls on contact.

**For treatment of turf:** Use on golf course fairways, greens and tees of Bentgrass, Bluegrass, Bermudagrass, Fescue, Ryegrass, St. Augustinegrass and their mixtures to control/suppress algae, bacterial and fungal diseases, and the odors and conditions that these organisms may cause.

Typical treatment rates involve treating approximately 1000 square feet of turf area with 10 gallons of diluted solution. Add a spreader surfactant for best results.

##### **Refer to Table 1 for turf application rates.**

- Optimum treatment time is early morning or late afternoon.
- For best results, apply immediately after grass has been cut.
- Applications can be made during wet or rainy weather.
- Use spray solution the same day it is prepared, do not store and reuse mixed spray solution.

DISEASE CONTROLLED	CURATIVE RATE	PREVENTATIVE RATE	NOTES
Anthracnose	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.
Brown Spot	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.
Dollar Spot	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.
Copper Spot	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.
Summer Patch	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.
Stripe Smut	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.
Take All Patch	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.
Leaf Spot	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.

DISEASE CONTROLLED	CURATIVE RATE	PREVENTATIVE RATE	NOTES
Fusarium Blight	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.
Fairy Ring	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Drench the soil to saturate the root systems in areas affected. Use 5-10 gallons per 1000 sq.ft.
Pink Snow Mold	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Spray in early fall to reduce number of dormant spores. Treat throughout winter. May be applied to frozen ground.
Pythium	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.
Phytophthora	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.
Rhizoctonia	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.
Algae & Slime Molds, Scum	6-12 fl. oz. per 1000 sq. ft. Use 3-5 gallons of solution per 1000 sq. ft.	2-6 fl. oz. per 1000 sq. ft. Apply at 7-day intervals.	Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.
Heavy Algae	12-25 fl. oz. per 1000 sq. ft.		Curative control may require 2 to 3 consecutive treatments to eradicate disease. Once control is achieved, follow with a 7-day prevention cycle. Combine with a systemic fungicide for residual suppression.

- ZeroTol can be injected through automatic irrigation systems in turf areas. Refer to Chemigation Directions for Use for specific instructions on using this product through irrigation systems.

#### For seed bed treatment:

- 1) Prior to sowing seeds or after seeds have germinated, use a dilution of 1:50 or 2-1/2 fl. oz. per gallon of clean water. Thoroughly wet or drench the seedbed, to the point of saturation, with 60 to 100 gallons of dilute solution per 1000 square feet.

For soil treatment, pre-inoculation with beneficial organisms, use ZeroTol to reduce the number of potentially plant pathogenic organisms in the soil that will prevent beneficials from becoming established. Use a dilution of 1:50 or 2-1/2 fl. oz. per gallon of clean water. Thoroughly wet or drench the area to be inoculated. Wait one day before inoculating soil.

#### CHEMIGATION:

##### 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.
- 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 dosed, 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 dosed, 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 dosed, 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 dosed, 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 ZeroTol in conjunction with any other pesticides or fertilizers; this has the potential to cause reduced performance of the product. Avoid application in this manner.

**WARRANTY:**

To the fullest extent permitted by law this material conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing, method of application, weather, watering practices, nature of soil, potting medium, disease problem, condition of crop, incompatibility with other chemicals, pre-existing conditions and other conditions influencing the use of this product are beyond the control of the seller. Buyer assumes all risks associated with the use, storage, or handling of this material not in strict accordance with directions given herewith. NO OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS OR MERCHANTABILITY IS MADE.

**NOTES:**

---

---

---

---

---

---

---

---

---

---

# MATERIAL SAFETY DATA SHEET

## 1. IDENTIFICATION

**Product Name:** ZeroTol®  
**Product Type:** Algaecide / Fungicide  
**Manufacturer:** BioSafe Systems LLC  
22 Meadow Street  
East Hartford, CT 16108  
**Office Telephone:** (888) 273-3088  
**Emergency:** CHEMTREC: 800-424-9300  
(24 HOURS EVERY DAY)  
**Creation Date:** 06/06

*NOTE:* Not valid two years after creation date.

EPA Registration No. ....70299-1  
EPA Establishment No. ....60156-IL-001

## 2. HAZARDOUS COMPONENTS

Peroxyacetic Acid C.A.S. ....#79-21-0  
Hydrogen Peroxide C.A.S. ....#7722-84-1

## 3. HEALTH HAZARDS DATA

Health effects to over exposure to Concentrate  
• Corrosive to mucous membranes, eyes and skin  
• The seriousness of the lesions and the prognosis of intoxication depend directly on the concentration and duration of exposure.

**Skin:** May cause TEMPORARY skin discoloration and irritation

**Eyes:** May cause severe eye damage

**Ingestion:** HARMFUL OR FATAL: Causes chemical burns of mouth, throat and stomach.

- Corrosive to gastrointestinal tract
- Paleness and cyanosis of the face
- Excessive fluid in the mouth and nose
- Bloating of stomach and belching
- Nausea and vomiting

• Risk of chemical pneumonitis and pulmonary edema

**Inhalation:** Vapors or mist can cause irritation. People with asthma or other lung problems may be more affected.

## 4. 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 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 a poison control center or doctor. Do not give anything by mouth to an unconscious person.

**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 poison control center or doctor for treatment advice.

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.

## 5. FIRE AND EXPLOSION DATA

- Special fire hazards: Product (concentrate) can decompose and will release oxygen thereby adding to the fire hazard.
- Fire fighting methods: Product is not flammable and can be quickly diluted with clean water.
- Oxidizing Agent may cause spontaneous ignition with oxidizing agents.

## 6. SPILL OR LEAK PROCEDURES

- Cleanup: Rinse small amounts to drain when possible. Dike or dam large spills, pump to containers or soak in inert absorbent. Flush residue to sanitary sewer, rinse area thoroughly with clean water.
- Avoid materials that are incompatible with concentrate.
- Waste Disposal: Consult state and local authorities for restrictions on disposal of chemical wastes. Unused product (concentrate) is classified as a (D002) by RCRA criteria.

## 7. HANDLING AND STORAGE

- Never return product back to the original container
- Keep concentrate away from reactive substances
- Prevent contact with organic materials
- Keep product in original container
- Store in cool, ventilated area
- Keep out of direct sunlight
- Never use metal containers or spigots
- Use vented container
- Warn personnel of dangers of concentrated product

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Respiratory:** Avoid breathing mists or vapors of concentrate

**Eyes:** Use chemical splash goggles when handling concentrate. For continued severe exposure, wear a face shield over the goggles.

**Skin:** Rubber gloves - protective or gauntlet type preferred when handling concentrate. Use aprons.

ACGIH TLV: 1 PPM 8 HOUR TWA  
1.4 mg/m<sup>3</sup> TWA

OSHA PEL: 1 PPM 8 HOURS TWA  
1.4 mg/m<sup>3</sup> TWA

**Respiratory protection:**

- NIOSH approved full-face respirator for excessive conditions
- Hand gloves for handling concentrate = butyl rubber
- Eye protection - chemical proof goggles/face shield for splash risk
- Skin protection - coveralls when handling concentrate

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Clear, colorless liquid

**Odor:** Pungent

**Freezing Point:** -30 C (-22F)

**Boiling Point:** Not applicable, product decomposes

**Specific gravity:** 1.09

pH: 1.33

**Solubility:** Complete

**Decomposition temperature:** self-accelerating decomposition temperature > 55C

## 10. STABILITY AND REACTIVITY

**Stability:** Stable under normal conditions, with slow oxygen release.

**Conditions to avoid:** Heat / Direct Sunlight

**Materials to avoid:** Acids · Bases · Reducing Agents  
Organic Materials · Metals · Salts of Metals

## 11. TOXICOLOGICAL INFORMATION:

**Acute Toxicology:**

- Oral route, LD50, rat 330 mg/kg. Test substance 7% solution.
- Dermal route, LD50 rabbit, 1410 mg/kg. Test substance: 10% solution
- Inhalation, LD50, four hours, rat 4080 mg/kg. Test substance: 5% solution

**Irritation:**

- Rabbit, corrosive (eyes) Test substance: 4% solution
- Rabbit, corrosive (skin) Test substance 5% solution
- Rat, irritant (respiratory tract)

**Chronic Toxicity:**

- Dermal => 0.12% solution, irritating effect
- Inhalation = > 5 mg. m<sup>3</sup>, irritant
- Route of entry = Inhalation / ingestion

## 12. ECOLOGICAL INFORMATION

Toxic to simple cell and aquatic organisms Danger to the environment limited; due to product properties.

- No bioaccumulation
- Soil degradation = 99% in 20 minutes
- Considerable abiotic and biotic degradability
- Sediments = Non-significant adsorption
- Weak persistence of degradation products
- Degradation products = water & oxygen

**Acute Ecotoxicity:**

- Fish, Rainbow trout LC50, 48 hours > 40 mg/L
- Crustaceans, EC 50, 48 hours 126.8 mg/l 1 mg/L
- Bacteria, Pseudomonas aeruginosa, EC 100, 5 minutes, % 5mg/L

## 13. DISPOSAL CONSIDERATIONS

• 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. Do not store in a manner where cross-contamination with other pesticides or fertilizers could occur.

• Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Open dumping is prohibited. 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.

• Triple rinse (or equivalent). Then offer for recycling or dispose in a sanitary landfill, or incineration, if allowed by state and local authorities by burning. Stay out of smoke.

## 14. TRANSPORT INFORMATION

**DOT Shipping Name:** Hydrogen Peroxide and peroxyacetic acid mixture, stabilized, not more than 5% Peroxyacetic acid.

**UN Number:** 3149

**Hazard Class:** 5.1

**Primary Hazard Label:** Oxidizer

**Subsidiary Risk Label:** Corrosive

**Packing Group:** II

**Shipping Container:** UN Certified vented polyethylene. 2.5, 30, 55 and 275 gallon polyethylene drums

**Regulatory Information**

**TSCA Inventory List:** YES

**CERCLA Hazardous Substance (40 CFR 302)**

**Listed substance:** NO

**Unlisted Substance:** YES

**Characteristic:** Corrosive

**Reportable Quantity:** 100 pounds

**NFPA Rating Health – 2 Flammability – 0 Reactivity – 3 Special – OXY**

**HMS Rating Health – 2 Flammability – 0 Reactivity – 2 PPE - Required**

**Canadian WHMIS Classification**

**C – Oxidizing E – Corrosive F – Dangerously Reactive**

*To the extent of our knowledge, the information herein is accurate as of the date of this document. However, neither BioSafe Systems nor any of its affiliates make any warranty, expressed or implied, or accept any liability in connection with the information or its use. The information is for use by technically skilled persons at their own discretion and risk. This is not a license or a patent. The user alone must finally determine suitability of any information or material for any contemplated use, the manner or use and whether any patents are infringed.*

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

©2006 Copyright BioSafe Systems LLC. ZeroTol® is a registered trademark of BioSafe Systems LLC. Always read and follow label directions. 6\_2006