

# Actinovate® SP

- Biological fungus control.
- Controls soil-borne plant diseases such as pythium, rhizoctonia, phytophthora, verticillium, fusarium and others.
- Suppresses and controls foliar disease such as powdery mildew, downy mildew, botrytis, sclerotinia, monilinia, alternaria, erwinia, and others.
- 100% Soluble. Will not clog machinery.
- Enhances plant vitality.
- Encourages larger root systems
- For nursery, greenhouse (including vegetables and herbs), landscapes and interiorscapes



Active ingredient:  
Streptomyces lydicus wyec 108\* .....00.0371%  
Other ingredients: .....99.9629%  
100.0000%

\*End-use product contains not less than  $1 \times 10^7$  colony forming units per gram  
*Streptomyces lydicus* WYEC 108

Information regarding the contents and levels of metals in this product is available on the internet at <http://www.Aapfco.Org/metals.Htm>

## KEEP OUT OF REACH OF CHILDREN CAUTION

See back panel for additional precautionary statements.

Us patent number: 5,403,584  
EPA reg. No.: 73314-1  
EPA establishment no.: 73314-Tx-001  
**Manufactured by:**  
Natural Industries, Inc.  
6223 Theall Road  
Houston, Texas 77066  
Questions? (888) 261-4731



### PRECAUTIONARY STATEMENTS

#### Personal Protective Equipment (PPE):

Applicators and other handlers must wear:  
\*Long-sleeved shirt and long pants,  
\*Shoes plus socks.

Mixer/loaders and applicators must wear a dust/mist-filtering niosh approved respirator with any n, p, r or he filter. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning/maintaining ppe. If no such instructions for washables, use detergent and hot water. Keep and wash ppe separately from other laundry.

#### User Safety Recommendations:

\*Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.  
\*Remove clothing/pe immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.  
\*Remove ppe immediately after handling this product. If gloves are worn, wash the outside of gloves before removing as soon as possible, wash thoroughly and change into clean clothing.

#### Environmental hazards:

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 cleaning equipment or disposing of equipment washwaters or rinsate.

### 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 through drift. Only protected handlers may be in the area during application. 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. The requirements in this box only apply to uses of this product that are covered by the worker protection standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (rei) of one (1) hour or until solution has dried.

**Exception:** if the product is soil incorporated the worker protection standard, under certain circumstances, allows workers to enter treated area if there is no contact with anything that has been treated.

PPE requirements 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,
- \*Waterproof gloves
- \*Shoes plus socks.

### Non-Agricultural Use Requirements

The requirements in this box apply to uses of the 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.

### PRODUCT INFORMATION:

Actinovate® SP is a biological fungicide for the suppression/control of root rot and damping-off fungi and the suppression/control of foliar fungal pathogens. When used as a soil drench, soil borne fungi suppressed/controlled include *Fusarium*, *Rhizoctonia*, *Pythium*, *Phytophthora*, *Phytophthora*, *Phytophthora*, *Sclerotinia*, *Gaeumannomyces*, and *Verticillium*. The active ingredient in Actinovate® SP colonizes the root system and protects it from harmful fungi. When used as a foliar spray, Actinovate® SP effectively suppresses/controls foliar diseases such as powdery and downy mildew, *Botrytis*, *Sclerotinia*, and *Alternaria*.

When applied to the soil, Actinovate® SP also breaks down minerals and micro-nutrients making them more available to plants resulting in increased size and vitality. Plants treated with Actinovate® SP as a soil drench will become hardier, more vigorous and will have a robust and protected root system.

### APPLICATION DIRECTIONS:

#### Compatibility:

Actinovate® SP is completely soluble and does not require agitation to keep suspended in a solution. Actinovate® SP is compatible with most chemical fungicides, insecticides and fertilizers. If tank mixes are desired, observe the most restrictive directions, precautions and limitations on labeling of all products used. Actinovate® SP can be tank mixed or dry mixed with all chemical fungicides, insecticides, and fertilizers unless otherwise restricted. Consult manufacturer for compatibility questions. Do not apply soil fumigants to areas treated with Actinovate® SP.

#### Application timing:

Apply Actinovate® SP throughout the growing season from early spring to late fall on ornamentals, greenhouse and nursery crops. Note: Since Actinovate® SP contains live spores of a microbe, best results will be obtained if the product is used prior to disease onset. Actinovate® SP becomes active in soil or on the plant foliage when the temperatures are above 45° F and is not effective when temperatures remain cold. Actinovate® SP can be applied to sterilized or fumigated soil, but it must be applied after sterilization or fumigation.

#### Application uses:

Actinovate® SP is a biological fungicide for use as a soil drench, in-furrow seed spray, cutting or bare rooted transplant dip, ornamental bulb crop soak or dusting treatment, and foliar application for ornamentals, all greenhouse and nursery crops, and landscape plants including tree seedlings for transplanting to the field.

### GREENHOUSE, NURSERY, ORNAMENTAL LANDSCAPE OR INTERIORSCAPE DRENCH

For preventative suppression/control of *Pythium*, *Rhizoctonia*, *Phytophthora*, *Fusarium*, *Verticillium* and *Sclerotinia* on greenhouse, nursery, landscape and interiorscape crops.

Mix 4-6 oz of Actinovate® SP in 100 gallons of water to create solution. Apply solution as a normal drench to plants/growing media at a rate of solution that saturates soil without creating run-off.

**For smaller quantities:** use 1 teaspoon of Actinovate® SP per 2 gallons of water to create solution and apply as above.

Actinovate® SP can be applied through low pressure watering nozzles such as fan nozzles, through overhead boom type sprayers or sprinklers, hydroponics systems, injectors, flood benches or other drench watering systems. Actinovate® SP is compatible with most chemical fungicides, insecticides, and fertilizers as well as other biological products. See the compatibility section for additional details.

### CUTTING OR BARE ROOTED TRANSPLANT DIP:

Dip cuttings or transplants in Actinovate® SP dry powder or in a solution of 18-oz Actinovate® SP and 5 gallons water. For larger trees or woody ornamentals, dis-

solve 18-oz of Actinovate® SP in 50 gallons of water and let bare root plants soak in the solution for 4-12 hours prior to planting. Plant treated cuttings or transplants in potting mix or soil in the usual manner.

#### **GREENHOUSE, NURSERY, ORNAMENTAL LANDSCAPE AND INTERIORSCAPE FOLIAR SPRAYS**

For preventative suppression/control of powdery mildew, downy mildew, *Botrytis*, *Phytophthora*, *Sclerotinia*, and *Alternaria* on greenhouse, nursery, landscape, and interiorscape plants, apply 6-12 oz Actinovate® SP per acre. Dissolve Actinovate® SP in 50-100 gallons of water and apply to foliage and blossoms every 7 to 14 days depending on disease pressure. Crop size, spray equipment, and local practices will determine the volume of water needed. Spray to wet, but do not allow run-off.

**For smaller quantities:** Use 1 teaspoon of Actinovate® SP per gallon of water as a dilution and apply as above.

Actinovate® SP can be applied using hand-held backpack or ground spray equipment. Clean application equipment before use of this product and use prepared sprays within 4 hours of preparation. For best results, use a non-ionic spreader-sticker in conjunction with application. Consult manufacturer or sales representative for specific suggestions.

#### **ORNAMENTAL BULB CROPS (INCLUDING CORMS, RHIZOMES, TUBERS, AND SEEDS):**

**Soak:** Soak bulbs in solution of Actinovate® SP at 6-18 oz per 100 lbs of bulbs. Dilute in enough water to completely cover bulbs. Thoroughly cover all surfaces of bulbs with solution for 1 hour prior to planting.

**Soil drench:** Apply to soil through irrigation or as an in-furrow seed spray in 20-200 gallons of water at a rate of 6-12 oz of Actinovate® SP per acre.

**Dusting:** Prior to planting or shipping, evenly dust bulbs at a rate of 2-6 oz of Actinovate® SP per 100 lbs of bulbs.

#### **GREENHOUSE AND NURSERY CHEMIGATION**

##### **General Requirements:**

- Apply Actinovate® SP at 4-6 oz per 100 gallons of water.
- Apply Actinovate® SP only through 1) overhead boom and mist-type systems, 2) sprinklers such as impact or micro-sprinklers, 2) pressurized drench (flood) or drip (trickle) systems, 3) micro irrigation such as spaghetti tube or individual tube irrigation, 4) hand-held calibrated irrigation equipment such as hand-held wand with injector, and 5) ebb and flow systems. Do not apply this product through any other type of irrigation system.
- Plant injury or lack of effectiveness can result from non-uniform distribution of treated water.
- If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
- 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.
- 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.

##### **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, back flow 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 flow 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.
- 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.
- 8) Continuous agitation is not required in pesticide supply tanks unless tank mixing with other products or fluid fertilizers that require it.
- 9) Application of the product may be made continuously for the duration of the water application or can be applied at the end or after the water application.
- 10) To mix in supply tank, fill tank half way with water and add product. Stir until completely dissolved. Fill tank with remaining amount of water.
- 11) Use product with 10-200 gallons of water per acre. Use enough water so as not to create excessive leaching or run off.

##### **Sprinkler Chemigation Requirements:**

- 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 back flow.
- 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 fitted with a system interlock.

- 7) Do not apply when wind speed favors drift beyond the area intended for treatment.
- 8) Continuous agitation is not required in pesticide supply tanks unless tank mixing with other products or fluid fertilizers that require it.
- 9) Application of the product may be made continuously for the duration of the water application or can be applied at the end or after the water application.
- 10) To mix in supply tank, fill tank half way with water and add product. Stir until completely dissolved. Fill tank with remaining amount of water.
- 11) Use product with 10-200 gallons of water per acre. Use enough water so as not to create excessive leaching or run off.

##### **Drip Chemigation Requirements:**

- 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 back flow.
- 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 inter-locking 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 fitted with a system interlock.
- 7) Continuous agitation is not required in pesticide supply tanks unless tank mixing with other products or fluid fertilizers that require it.
- 8) Application of the product may be made continuously for the duration of the water application or can be applied at the end or after the water application.
- 9) To mix in supply tank, fill tank half way with water and add product. Stir until completely dissolved. Fill tank with remaining amount of water.
- 10) Use product with 10-200 gallons of water per acre. Use enough water so as not to create excessive leaching or run off.

##### **Flood Chemigation Requirements:**

- 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 back flow if water flow stops.
- 2) 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 back flow.
  - 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 fitted with a system interlock.
- 3) Use of a supply tank is recommended. Continuous agitation is not required in pesticide supply tanks unless tank mixing with other products or fluid fertilizers that require it.
- 4) Application of the product may be made continuously for the duration of the water application or can be applied at the end or after the water application.
- 5) To mix in supply tank, fill tank half way with water and add product. Stir until completely dissolved. Fill tank with remaining amount of water.
- 6) Use product with 10-200 gallons of water per acre. Use enough water so as not to create excessive leaching or run off.

#### **STORAGE AND DISPOSAL**

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

##### **Pesticide Storage:**

Store in a dry, cool place out of direct sunlight and away from heat sources. Keep from overheating or freezing. Optimum storage temperature is 40° F to 85°F.

##### **Pesticide Disposal:**

To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments by industry).

##### **Container Disposal:**

Non-refillable container. Do not reuse or refill this container. Clean container promptly after emptying. Then offer for recycling if available or puncture and dispose of in sanitary landfill, or by incineration. Do not burn, unless allowed by state and local ordinances.

Batch Code: \_\_\_\_\_

#### **LIMITED WARRANTY/DISCLAIMER**

To the extent consistent with applicable law manufacturer warrants that this product is suited for the labeled uses when applied according to label directions. To the extent consistent with applicable law, manufacturer makes no warranty of merchantability. To the extent consistent with applicable law, there are no warranties that extend beyond the description on this label and in no event shall manufacturer be liable for any consequential damages.

Use By:

LOT NUMBER:

Version: 04-2010