

**ACCEPTED**

05/21/2015

Under the Federal Insecticide, Fungicide  
and Rodenticide Act as amended, for the  
pesticide registered under  
EPA Reg. No. 72431-1

## Master Label

# ZONIX™ Biofungicide

Alternate Brand Names: "OF COURSE"; "ANEW"; "DIONYSUS"; "BLINIX"; "BLI-NIX";  
"TREEVENT"

**Sublabel A: Agricultural Uses (WPS-Subject)**  
**Sublabel B: Non-Agricultural Uses (NonWPS-Subject)**  
**Optional label claims**

**ACTIVE INGREDIENT:**

Rhamnolipid Biosurfactant\* .....8.50%

**OTHER INGREDIENTS:** .....91.50%

**TOTAL:** .....100.00%

\*Contains a minimum of 11.30 fl. oz. of rhamnolipid biosurfactant per gallon.

Source organism: *Pseudomonas aeruginosa*.

EPA Reg. No.: 72431-1

EPA Establishment No.: 72431-WI-001

**Manufactured by:**

Jeneil Biosurfactant Company

400 N. Dekora Woods Blvd.

Saukville, Wisconsin 53080

ZONIX™ Biofungicide; EPA Reg. No. 72431-1

Label amendment (FAST TRACK)

MASTER LABEL - version (22b) dated March 11, 2015

Page 1 of 19

**Sublabel A: Agricultural Uses (WPS-Subject)**

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**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 the label, find someone to explain it to you in detail.)**

<b>FIRST AID</b>	
<b>If in eyes</b>	<ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes.</li><li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>If swallowed</b>	<ul style="list-style-type: none"><li>• Call poison control center or doctor immediately for treatment advice,</li><li>• Have person sip a glass of water if able to swallow.</li><li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul>
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.	
<b>NOTE TO PHYSICIAN:</b> Probable mucosal damage may contraindicate the use of gastric lavage.	

**(See back panel (insert label) for additional precautionary statements (and directions for use).)**

EPA Reg. No.: 72431-1  
EPA Establishment No.: 72431-WI-001

Net Contents: 15, 30, 55, 200 or 400 gallons  
(Lot No. / Batch Code: \_\_\_\_\_)

**Manufactured by:**  
Jeneil Biosurfactant Company  
400 N. Dekora Woods Blvd.  
Saukville, Wisconsin 53080

## PRECAUTIONARY STATEMENTS

**HAZARDS TO HUMANS AND DOMESTIC ANIMALS – DANGER: Corrosive.** Causes irreversible eye damage. Do not get in eyes or on clothing. Wear goggles or face shield. After product is diluted in accordance with the directions for use, product causes moderate eye irritation. Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before reuse.

**PERSONAL PROTECTIVE EQUIPMENT (PPE):** Handlers who may be exposed to the dilute through application or other tasks must wear: long-sleeved shirt and long pants, and shoes plus socks. Handlers who may be exposed to the concentrate through mixing, loading, application, or other tasks must wear: long-sleeved shirt and long pants, shoes plus socks, and protective eyewear. Follow manufacturer's instructions for cleaning / maintaining PPE. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**USER SAFETY RECOMMENDATIONS:** Users should wash hands 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. Users should remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**ENVIRONMENTAL HAZARDS:** Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean highwater mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Exposed treated seed may be hazardous to birds and other wildlife. Dispose of all excess treated seed by burial away from streams and bodies of water.

READ ENTIRE LABEL BEFORE USING THIS PRODUCT  
SEE ATTACHED BOOKLET FOR COMPLETE DIRECTIONS FOR USE AND  
PRECAUTIONARY STATEMENTS.

## DIRECTIONS FOR USE

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

### 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 4 hours.

PPE required 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, and protective eyewear.

**EXCEPTION:** If the product is soil-injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

**General Information:** ZONIX™ Biofungicide is for the prevention and control of plant pathogenic fungi on horticultural and agricultural crops in community gardens, schools, greenhouses, nurseries and the field. (Zoospore fungal diseases are often spread by zoospores that are transported from one plant to another and from field to field. ZONIX™ Biofungicide kills zoospores that cause fungal disease, on contact.) Use ZONIX™ Biofungicide on the seeds, seedlings, bulbs, transplants, cuttings, foliage, fruit and roots of the following greenhouse and field agricultural commodities and horticultural crops:

**Root, Bulb, Tuber and Cane Crops**, such as: beets, carrots, cassava, garlic, ginger, onions, potatoes, radish, sugar beets, sweet potatoes and yams.

**Fruiting Vegetables**, such as: eggplant, pepper and tomato.

**Legume Crops**, such as: alfalfa, field beans, lentils, peas, peanuts, and soybeans.

**Leafy Vegetables**, such as: asparagus, broccoli, cabbage, celery, collards, lettuce and spinach.

**Cucurbit Vegetables**, such as: cantaloupe, cucumber, melon, squash, watermelon and zucchini.

**Fruit and Nut Trees**, such as: almonds, apples, apricots, cherries, filberts, macadamia, nectarines, peaches, pecans, pistachios, plums and walnuts.

**Citrus Fruits**, such as: grapefruit, lemon and orange.

**Tropical Crops**, such as: avocado, banana, cocoa, coffee, guava, lychee nuts, mango, papaya, pineapple and plantain.

**Berry Crops**, such as: blueberry, gooseberry, raspberry and strawberry.

**Grain, Forage, Fiber and Oil Crops**, such as: barley, canola, corn, cotton, hops, millet, oats, rice, rye, sesame, sorghum, Sudan grass, and wheat.

**Vine Crops**, such as: grapes, kiwi and passion fruit.

**Herbs, outdoor or enclosed**, such as: chive, mint, oregano, parsley, sage and thyme. Including herbs grown as bedding plants.

**Tobacco and other specialty crops** such as buckwheat, guar, plantago ovata, ginseng, sapodilla, guayule and meadowfoam

## Mushroom houses

**Ornamental Plants grown in greenhouses and nurseries**, such as: begonia, bougainvillea, chrysanthemum, cyclamen, dahlia, ferns, foliage plants, fuchsia, ivy, lily, miniature roses, orchid, peony, phlox, and poinsettia.

**Ornamental Trees and Shrubs grown in greenhouses and nurseries**, such as: azalea, birch, blue spruce, boxwood, camellia, cedar, crabapple, cypress, dogwood, elm, ficus, fir, flowering cherry, flowering peach, forsythia, gardenia, hackberry, holly, hydrangea, laurel, lilac, magnolia, maple, myrtles, oak, pines, poplar, privet, pyracantha, rhododendron, spruce and sycamore.

**Flowers for Cutting grown in greenhouses and nurseries**, such as: aster, alstroemerias, baby's breath, carnations, chrysanthemums, fuchsia, lilies, and roses.

**Bedding Plants grown in greenhouses and nurseries**, such as: aster, calendula, carnation, cosmos, impatiens, lobelia, marigold, nasturtium, pansy, petunia, snapdragon, sweet alyssum, verbena and zinnia.

**Turf Grass on sod farms**, such as: bentgrass, Bermuda grass, bluegrass, centipede grass, fescue, ryegrass, and St. Augustine.

Use ZONIX™ Biofungicide to prevent and control *Botrytis* spp., Powdery Mildew, and any zoosporic plant pathogenic microorganisms including the following genera: Achlya, Albugo, Aphanomyces, Basidiophora, Olpidium, Pachymetra, Peronophthora, Peronosclerospora, Physoderma, Phytophthora, Plasmodiophora, Plasmopara, Polymyxa, Pseudoperonospora, Pythium, Rhizophydium, Sclerophthora, Sclerospora, Spongospora, Synchytrium, and Trachysphaera.

**Use Restriction:** Do not use ZONIX™ Biofungicide for the control or prevention of late blight (*Phytophthora* spp.) when ambient temperatures are over 80°F. At above 80°F that organism moves out of the zoospore stage and the product will not be efficacious.

**Mixing Directions:** Fill tank with half the water, then add ZONIX™ Biofungicide and agitate. Add remaining water. When entire volume of water has been added, thoroughly agitate mix before making application. Continued agitation is not necessary. Use solution within 24 hours. It is possible to mix ZONIX™ Biofungicide with other products such as nutrients and pesticides; however, final concentration of 300 to 500 ppm must be maintained. Consult specific product labels for additional information or restrictions concerning tank mixing. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

**Application Directions:** Apply ZONIX™ Biofungicide at a concentration of 300 to 500 ppm. Make applications in the early stages of plant growth for initial control. Reapply at 5-day intervals or as needed throughout the growing season for preventative control. Early treatment prevents diseases from developing. ZONIX™ Biofungicide is a contact biofungicide that controls disease upon contact with zoospores. Thorough coverage is necessary for disease control. To assure control, make applications at the time that conditions are best for occurrence of zoospores and resultant disease.

Refer to the Dilution Table for the appropriate amount of ZONIX™ Biofungicide needed to achieve a concentration of 300 to 500 ppm. Use the higher rate for the first treatment or when disease pressure is high.

**Dilution Table –**

Amount of water (Gallons)	Amount of ZONIX™ Biofungicide (fl. oz)		
	for 300 ppm	for 500 ppm	for 1000 ppm
0.25 (1 quart)	¾ tsp (3.7 mls*)	1 1/8 tsp (5.9 mls*)	2 1/4 tsp (11.8 mls*)
1	0.5 oz. (14.8 mls*)	.8 oz. (23.6 mls*)	1.6 oz. (47.2 mls)
10	5	8	16
50	23	38	76
100	45	76	152
200	90	152	228
300	136	228	304
400	181	304	759
500	226	379	1518
1000	452	759	3036

\*1 oz. = 29.57 milliliters (mls)

**Foliar spray, fog or drench** - Apply ZONIX™ Biofungicide using conventional equipment as a spray, fog or drench to the point of saturation. Good coverage and wetting of the foliage is required. Use enough spray solution to completely penetrate the leaf canopy and both cover the top and underside of all leaves until runoff. The amount of spray solution to apply will vary depending on the type of crop. Most row crops will require up to 100 gallons of spray per acre, while mature trees will require up to 500 gallons of spray per acre. Prepare enough solution based on plant density and soil conditions to insure thorough coverage, maintaining a concentration of 300 to 500 ppm ZONIX™ Biofungicide. Reapply at 5-day intervals or as needed throughout the growing season for preventative control.

**Soil and growing media drench** - Apply ZONIX™ Biofungicide to soil and growing media 48 hours prior to use for seeding or transplanting, and apply to soil and growing media as a drench at 5-day intervals or as needed throughout the plants' life. Use ZONIX™ Biofungicide at a concentration of 300 to 500 ppm on potting soil and growing medias prior to planting to kill existing zoospores in the soil. Use enough spray solution to treat the soil or growing media to the point of saturation.

**Pre-Plant spray or mist application** - Use ZONIX™ Biofungicide to prevent damping-off and seed rots due to *Pythium* and *Phytophthora*, early season *Phytophthora* root rot, and plant and cutting diseases on seeds, seedlings, bulbs, transplants or cuttings prior to planting. Apply ZONIX™ Biofungicide using conventional equipment as a spray or mist to the point of saturation. Good coverage and wetting of the plant material is required. Prepare enough solution to insure thorough coverage, maintaining a concentration of 300 to 500 ppm ZONIX™ Biofungicide. Do not use treated seed for food, feed or oil purposes. Treat only those seeds needed for immediate use and planting. Do not store excess treated seeds beyond planting time.



**Closed systems for ebb and flow and hydroponics application** – Meter or inject ZONIX™ Biofungicide to achieve a concentration of 300 to 500 ppm into closed continuous recirculation systems used in hydroponics growing or ebb and flow in rock wool and peat / perlite mixtures. Apply ZONIX™ at 5-day intervals or as needed throughout the plants' life.

**Irrigation systems** – Meter ZONIX™ Biofungicide to achieve a concentration of 300 to 500 ppm into irrigation systems and apply continuously for the duration of the water application. Refer to the Chemigation section of this label for complete details on application through irrigation systems. Apply through a drip (trickle) system or sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set or hand move irrigation systems. Apply ZONIX™ at 5-day intervals or as needed throughout the growing season.

**Application directions for mushroom houses** – Apply ZONIX™ Biofungicide to control zoosporic diseases including Downy mildew, *Phytophthora*, and *Pythium* on mushroom beds, bags and logs. Apply ZONIX™ Biofungicide immediately after casing, after flushing, between first and second breaks, and between second and third breaks. Apply as needed for disease control.

Application after Casing: Apply ZONIX™ Biofungicide at a concentration of 300 ppm to 500 ppm as a surface drench at any time after the casing layer has been applied and before flushing, using sufficient water to ensure an even application.

Application After Flushing: Apply ZONIX™ Biofungicide at a concentration of 300 ppm to 500 ppm as a surface drench at any time after flushing up until 4 hours before picking begins, using sufficient water to ensure an even application.

Application Between Breaks: Apply ZONIX™ Biofungicide at a concentration of 300 ppm to 500 ppm as a surface drench at any time between each set of breaks, up until 4 hours before picking begins, using sufficient water to ensure an even application.

Dispose of all spent medium using standard industry practices.

**Application directions for Sudden Oak Death (*Phytophthora ramorum*)** - Apply ZONIX™ Biofungicide to control *Phytophthora ramorum* on infected **ornamental trees and shrubs**. Apply ZONIX™ Biofungicide as a foliar spray, fog or drench, a soil and growing media drench, a pre-plant spray or mist application or via chemigation at a concentration of 1000 ppm using sufficient water to wet infected foliage and root zone using.

**Compatibility:** ZONIX™ Biofungicide is believed to be compatible with most commonly used pesticides. Consult specific product labels for additional information or restrictions concerning tank mixing. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures. It is always advisable to conduct a spray compatibility test when you plan to mix this product with other products. To determine the physical compatibility of this product with other products, use a jar test. Using a quart jar, add the proportionate amounts of the products to approximately one quart of water with agitation. Add dry formulations first, then flowables, and then emulsifiable concentrates last. After thorough mixing, allow this mixture to stand for 5 minutes. If the combination remains mixed or can be readily remixed, it is physically compatible. Once compatibility has been proven, use the same procedure for adding products

to the spray tank. Use tank-mix combinations on a small number of plants before treating large areas, as crop sensitivity to these mixtures may vary.

ZONIX™ Biofungicide has been evaluated for phytotoxicity on a variety of crops under various normal growing conditions. However, testing all crop varieties, in all mixtures and combinations is not feasible. Prior to treating entire crop, test a small portion of the crop for sensitivity.

## **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 or hand move 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 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 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.

**Specific Requirements for Sprinkler Chemigation -**

- 1) The system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- 2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 3) The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- 4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

- 5) The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- 6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being filled with a system interlock.
- 7) Do not apply when wind speed favors drift beyond the area intended for treatment.

#### **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) Meter ZONIX™ Biofungicide to achieve a concentration of 300 - 500 ppm into irrigation systems and apply continuously for the duration of the water application.
- 3) Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required. The product will immediately go into suspension without any required agitation.

#### **STORAGE AND DISPOSAL**

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

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

**Pesticide Disposal:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

**Container Handling:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Triple rinse container promptly after emptying.

*(Containers 5 gallons or less)*

Triple rinse as follows: Fill container ¼ full with water and recap. Agitate vigorously. Follow Pesticide Disposal instructions for rinsate disposal. Drain for 10 seconds after the flow begins to drip. Repeat procedure two more times. Then offer for recycling or reconditioning. If not available, puncture and dispose in a sanitary landfill.

*(Containers greater than 5 gallons):*

Triple rinse as follows: Fill container ¼ full with water. 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. Turn the container over onto its other end and tip it back and forth several times. Follow Pesticide Disposal instructions for rinsate disposal. Repeat this procedure two more times. Then offer for recycling or reconditioning. If not available, puncture and dispose in a sanitary landfill.

#### **NOTICE TO USER**

To the extent consistent with applicable law, seller makes no warranty express or implied, of merchantability, fitness or otherwise concerning the use of this product other than as indicated on the label. User assumes all risks of use, storage or handling not in strict accordance with label instructions.

**Sublabel B: Non-Agricultural Uses (NonWPS-subject)**

# ZONIX™ Biofungicide

**ACTIVE INGREDIENT:**

Rhamnolipid Biosurfactant\* ..... 8.50%

**OTHER INGREDIENTS:** ..... 91.50%

**TOTAL:** ..... 100.00%

\*Contains a minimum of 11.30 fl. oz. of rhamnolipid biosurfactant per gallon.

Source organism: *Pseudomonas aeruginosa*.

**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 the label, find someone to explain it to you in detail.)**

**FIRST AID**

<b>If in eyes</b>	<ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes.</li><li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>If swallowed</b>	<ul style="list-style-type: none"><li>• Call poison control center or doctor immediately for treatment advice,</li><li>• Have person sip a glass of water if able to swallow.</li><li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul>
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.	
<b>NOTE TO PHYSICIAN:</b> Probable mucosal damage may contraindicate the use of gastric lavage.	

**(See back panel (insert label) for additional precautionary statements (and directions for use).)**

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EPA Establishment No.: 72431-WI-001

Net Contents: 15, 30, 55, 200 or 400 gallons  
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**Manufactured by:**

Jeneil Biosurfactant Company  
400 N. Dekora Woods Blvd.  
Saukville, Wisconsin 53080

## PRECAUTIONARY STATEMENTS

**HAZARDS TO HUMANS AND DOMESTIC ANIMALS – DANGER: Corrosive.** Causes irreversible eye damage. Do not get in eyes or on clothing. Wear goggles or face shield. After product is diluted in accordance with the directions for use, product causes moderate eye irritation. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

Handlers who may be exposed to the dilute through application or other tasks must wear: long-sleeved shirt and long pants, and shoes plus socks. Handlers who may be exposed to the concentrate through mixing, loading, application, or other tasks must wear: long-sleeved shirt and long pants, shoes plus socks, and protective eyewear.

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

READ ENTIRE LABEL BEFORE USING THIS PRODUCT  
SEE ATTACHED BOOKLET FOR COMPLETE DIRECTIONS FOR USE AND  
PRECAUTIONARY STATEMENTS.

## DIRECTIONS FOR USE

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

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

**General Information:** ZONIX™ Biofungicide is for the prevention and control of plant pathogenic fungi on turf and ornamentals. Zoospore fungal diseases are often spread by zoospores that are transported from one plant to another. ZONIX™ Biofungicide kills zoospores that cause fungal disease, on contact. Use ZONIX™ Biofungicide on the foliage and roots of the following turf and ornamentals:

**Ornamental Plants in parks, ornamental gardens, golf courses, and public or private lawns and grounds,** such as: begonia, bougainvillea, chrysanthemum, cyclamen, dahlia, ferns, foliage plants, fuchsia, ivy, lily, miniature roses, orchid, peony, phlox, and poinsettia.

**Ornamental Trees and Shrubs in parks, ornamental gardens, golf courses, and public or private lawns and grounds,** such as: azalea, birch, blue spruce, boxwood, camellia, cedar, crabapple, cypress, dogwood, elm, ficus, fir, flowering cherry, flowering peach, forsythia, gardenia, hackberry, holly, hydrangea, laurel, lilac, magnolia, maple, myrtles, pines, poplar, privet, pyracantha, rhododendron, spruce and sycamore.

**Bedding Plants in parks, ornamental gardens, golf courses, and public or private lawns and grounds,** such as: aster, alstroemerias, calendula, carnation, cosmos, impatiens, lobelia, marigold, nasturtium, pansy, petunia, snapdragon, sweet alyssum, verbena and zinnia.

**Turf Grass in parks, golf courses and public or private lawns and grounds,** such as: bentgrass, Bermuda grass, bluegrass, centipede grass, fescue, ryegrass, and St. Augustine.

**Ornamental trees and shrubs infected with *Phytophthora ramorum*** such as: azalea, birch, blue spruce, boxwood, camellia, cedar, crabapple, cypress, dogwood, elm, ficus, fir, flowering cherry, flowering peach, forsythia, gardenia, hackberry, holly, hydrangea, laurel, lilac, magnolia, maple, myrtles, oak, pines, poplar, privet, pyracantha, rhododendron, spruce and sycamore.

Use ZONIX™ Biofungicide to prevent and control *Botrytis* spp., Powdery Mildew, and any zoosporic plant pathogenic microorganisms including the following genera: Achlya, Albugo, Aphanomyces, Basidiophora, Olpidium, Pachymetra, Peronophthora, Peronosclerospora, Physoderma, Phytophthora, Plasmodiophora, Plasmopara, Polymyxa, Pseudoperonospora, Pythium, Rhizophydium, Sclerophthora, Sclerospora, Spongospora, Synchytrium, and Trachysphaera.

**Mixing Directions:** Fill tank with half the water, then add ZONIX™ Biofungicide and agitate. Add remaining water. When entire volume of water has been added, thoroughly agitate mix before making application. Continued agitation is not necessary. Use solution within 24 hours. It is possible to mix ZONIX™ Biofungicide with other products such as nutrients and pesticides; however, final concentration of 300 to 500 ppm must be maintained. Consult specific product labels for additional information or restrictions concerning tank mixing. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

**Application Directions:** Apply ZONIX™ Biofungicide at a concentration of 300 to 500 ppm. Make applications in the early stages of plant growth for initial control. Reapply at 5-day intervals or as needed throughout the growing season for preventative control. Early treatment prevents diseases from developing. ZONIX™ Biofungicide is a contact biofungicide that controls disease upon contact with zoospores. Thorough coverage is necessary for disease control. To assure control, make applications at the time that conditions are best for occurrence of zoospores and resultant disease.

Refer to the Dilution Table for the appropriate amount of ZONIX™ Biofungicide needed to achieve a concentration of 300 to 500 ppm. Use the higher rate for the first treatment or when disease pressure is high.

**Dilution Table –**

Amount of water (Gallons)	Amount of ZONIX™ Biofungicide (fl. oz)		
	for 300 ppm	for 500 ppm	for 1000 ppm
0.25 (1 quart)	¾ tsp (3.7 mls*)	1 1/8 tsp (5.9 mls*)	2 1/4 tsp (11.8 mls*)
1	0.5 oz. (14.8 mls*)	.8 oz. (23.6 mls*)	1.6 oz. (47.2 mls)
10	5	8	16
50	23	38	76
100	45	76	152
200	90	152	228
300	136	228	304
400	181	304	759
500	226	379	1518
1000	452	759	3036

\*1 oz. = 29.57 milliliters (mls)

**Foliar spray, fog or drench** - Apply ZONIX™ Biofungicide using conventional equipment as a spray, fog or drench to the point of saturation. Good coverage and wetting of the foliage is required. Use enough spray solution to completely penetrate the leaf canopy and both cover the top and underside of all leaves until runoff. The amount of spray solution to apply will vary depending on the type of crop. Most uses will require up to 100 gallons of spray per acre, while mature trees will require up to 500 gallons of spray per acre. Prepare enough solution based on plant density and soil conditions to insure thorough coverage, maintaining a concentration of 300 ppm to 500 ppm ZONIX™ Biofungicide. Reapply at 5-day intervals or as needed throughout the plants' life for preventative control.

**Soil and growing media drench** - Apply ZONIX™ Biofungicide to soil and growing media 48 hours prior to use for seeding or transplanting, and apply to soil and growing media as a drench at 5-day intervals or as needed throughout the plants' life. Use ZONIX™ Biofungicide at a concentration of 300 to 500 ppm on potting soil and growing medias prior to planting to kill existing zoospores in the soil. Use enough spray solution to treat the soil or growing media to the point of saturation.

**Pre-Plant spray or mist application** - Use ZONIX™ Biofungicide to prevent damping-off and seed rots due to *Pythium* and *Phytophthora*, early season *Phytophthora* root rot, and plant and cutting diseases on seeds, seedlings, bulbs, transplants or cuttings prior to planting. Apply ZONIX™ Biofungicide using conventional equipment as a spray or mist to the point of saturation. Good coverage and wetting of the plant material is required. Prepare enough solution to insure thorough coverage, maintaining a concentration of 300 to 500 ppm ZONIX™ Biofungicide. Do not use treated seed for food, feed or oil purposes. Treat only those seeds needed for immediate use and planting. Do not store excess treated seeds beyond planting time.

**Irrigation systems** – Meter ZONIX™ Biofungicide to achieve a concentration of 300 – 500 ppm into irrigation systems and apply continuously for the duration of the water application. Refer to the Chemigation section of this label for complete details on application through irrigation systems. Apply through a drip (trickle) system or sprinkler including solid set or hand move irrigation systems. Apply ZONIX™ at 5-day intervals or as needed throughout the plants' life.

**Application directions for Sudden Oak Death (*Phytophthora ramorum*)** - Apply ZONIX™ Biofungicide to control *Phytophthora ramorum* on infected **ornamental trees and shrubs**. Apply ZONIX™ Biofungicide as a foliar spray, fog or drench, a soil and growing media drench, a pre-plant spray or mist application or via chemigation at a concentration of 1000 ppm using sufficient water to wet infected foliage and root zone using.

**Compatibility:** ZONIX™ Biofungicide is believed to be compatible with most commonly used pesticides. Consult specific product labels for additional information or restrictions concerning tank mixing. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures. It is always advisable to conduct a spray compatibility test when you plan to mix this product with other products. To determine the physical compatibility of this product with other products, use a jar test. Using a quart jar, add the proportionate amounts of the products to approximately one quart of water with agitation. Add dry formulations first, then flowables, and then emulsifiable concentrates last. After thorough mixing, allow this mixture to stand for 5 minutes. If the combination remains mixed or can be readily remixed, it is physically



compatible. Once compatibility has been proven, use the same procedure for adding products to the spray tank. Use tank-mix combinations on a small number of plants before treating large areas, as crop sensitivity to these mixtures may vary.

ZONIX™ Biofungicide has been evaluated for phytotoxicity on a variety of crops under various normal growing conditions. However, testing all crop varieties, in all mixtures and combinations is not feasible. Prior to treating entire crop, test a small portion of the crop for sensitivity.

#### **CHEMIGATION:**

##### **General Requirements -**

- 1) Apply this product only through a drip system or sprinkler including solid set or hand move 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 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 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.

**Specific Requirements for Sprinkler Chemigation -**

- 1) The system must contain a functional check valve, vacuum relief valve and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- 2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- 3) The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- 4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

- 5) The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- 6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being filled with a system interlock.
- 7) Do not apply when wind speed favors drift beyond the area intended for treatment.

#### **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) Meter ZONIX™ Biofungicide to achieve a concentration of 300-500 ppm into irrigation systems and apply continuously for the duration of the water application.
- 3) Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required. The product will immediately go into suspension without any required agitation.

#### **STORAGE AND DISPOSAL**

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

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

**Pesticide Disposal:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

**Container Handling:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Triple rinse container promptly after emptying.

*(Containers 5 gallons or less)*

Triple rinse as follows: Fill container ¼ full with water and recap. Agitate vigorously. Follow Pesticide Disposal instructions for rinsate disposal. Drain for 10 seconds after the flow begins to drip. Repeat procedure two more times. Then offer for recycling or reconditioning. If not available, puncture and dispose in a sanitary landfill.

*(Containers greater than 5 gallons):*

Triple rinse as follows: Fill container ¼ full with water. 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. Turn the container over onto its other end and tip it back and forth several times. Follow Pesticide Disposal instructions for rinsate disposal. Repeat this procedure two more times. Then offer for recycling or reconditioning. If not available, puncture and dispose in a sanitary landfill.

#### **NOTICE TO USER**

To the extent consistent with applicable law, seller makes no warranty express or implied, of merchantability, fitness or otherwise concerning the use of this product other than as indicated on the label. User assumes all risks of use, storage or handling not in strict accordance with label instructions.



## Optional Label Claims

- For horticultural and agricultural use to control *Botrytis* spp., Powdery Mildew, and zoosporic plant fungi such as blight and downy mildew.
- For turf and ornamental use to control *Botrytis* spp., Powdery Mildew, and zoosporic plant fungi such as (blight) (*Pythium*) and downy mildew.
- For horticultural and agricultural use on ornamental trees and shrubs infected with (Sudden Oak Death) (*Phytophthora ramorum*).
- Kills zoospores that cause fungal disease on contact.
- Liquid that (kills) (controls) on contact.
- (Controls) (Prevents) plant diseases.
- Protects plants from disease.
- OMRI Listed® logo.
- OMRI Listed ® Biofungicide.
- ZONIX™ Biofungicide is also a biosurfactant.
- When used at labeled rates, ZONIX™ Biofungicide has biosurfactant properties that replace other adjuvants used as spreading or wetting agents and as tank cleaning agents.
- ZONIX™ Biofungicide is effective in destroying zoospores due to the biosurfactant properties of rhamnolipids.
- ZONIX™ Biofungicide's biosurfactant properties provide an effective way of moving water and nutrients through both roots and foliage.
- Biosurfactants are powerful wetting agents that provide an effective way to move water and nutrients into growing plants through their life cycle.
- Biosurfactants increase the uptake of both water and nutrients in growing plants from germination to harvest.