RootShield® AG

Biological Fungicide

ACTIVE INGREDIENT:
Trichoderma harzianum Rifai strain T-22* . . . . . 1.15%

OTHER INGREDIENTS: .......................... 98.85%

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

*Contains at least 1.0 X 10^7 colony forming units per gram dry weight

EPA Reg. No. 68539-4  EPA Est. No. 068539-NY-001

See attached label booklet for FIRST AID, Precautionary Statements, Storage and Disposal Instructions and Directions for Use

KEEPOUT OF REACH OF CHILDREN
CAUTION
ACTIVE INGREDIENT:  
Trichoderma harzianum Rifai strain T-22*........1.15%  
OTHER INGREDIENTS:..................98.85% 
TOTAL:..............................100.00%  
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See attached label booklet for FIRST AID, Precautionary Statements, Storage and Disposal Instructions and Directions for Use

LOT No: _______________

EXPIRATION: _______________________

Net Weight: 30 lb (13.6 kg)

BioWorks®
How You Grow Matters™
100 Rawson Rd., Suite 205, Victor, NY 14564
www.bioworksinc.com
# FIRST AID

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 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 inhaled: • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice. • If swallowed: • Call a poison control center or doctor immediately for treatment advice. • Do not induce vomiting unless told to by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.

You may also contact 1-800-222-1222 for emergency medical treatment information.

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## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS & DOMESTIC ANIMALS

**CAUTION:** Harmful if absorbed through skin, inhaled, or swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes, or clothing. Avoid breathing dust. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

### PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear protective eyewear, long sleeved shirt, long pants, waterproof gloves, shoes and socks. Mixers/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95 or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### USER SAFETY RECOMMENDATIONS

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. Users should remove clothing / PPE immediately if pesticide gets inside. Then wash thoroughly and put on 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 disposing of equipment washwaters or rinsate.

### STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.  
**PESTICIDE STORAGE:** Store in a cool dry place. Do not store at temperatures above 75°F for prolonged periods. Keep container tightly closed when not in use. 
**PESTICIDE DISPOSAL:** Wastes resulting from use of this product must be disposed of on-site or at an approved waste disposal facility.  
**CONTAINER HANDLING:** Nonrefillable container. Do not reuse or refill this container. Completely empty bag by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then offer for recycling if available, or dispose of empty bag in sanitary landfill or by incineration. Do not burn, unless allowed by state and local ordinances. If burned, stay out of smoke. If outer box is contaminated, dispose of in same manner as required for the bag.

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BioWorks, Inc., 100 Rawson Road, Suite 205, Victor, NY 14564 (800) 877-9443  
S-0431 031213
**RootShield® AG**  
**Biological Fungicide**

**ACTIVE INGREDIENT:**  
Trichoderma harzianum Rifai strain T-22* …………………. 1.15%  
**OTHER INGREDIENTS:** 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Do not use treated seed for food or feed purposes or process for oil. Treat only those seeds needed for immediate use, minimizing interval between treating and planting. Do not store excess treated seeds beyond planting time.

COMMERCIAL SEED TREATMENT: Apply RootShield Seed Treatment as a slurry, a coating, in a pellet, or during seed priming. See table below.

NOTE: This product does not contain dye and is not covered by any approved tolerance exemption, or other clearance under the Federal Food, Drug and Cosmetic Act. To comply with 40 CFR 153.155 therefore, all seeds treated commercially with this product must be colored with an EPA-approved dye or colorant of suitable color to prevent accidental use as food or feed for animals.

The Federal Seed Act requires that bags containing seed treated with this product shall be labeled with the following information: "This seed has been treated with Trichoderma hanzianum RLF strain T-22. Do not use for food, feed or oil purposes."

AGRICULTURAL CROPS

<table>
<thead>
<tr>
<th>Crops</th>
<th>Use</th>
<th>Application Rate of RootShield AG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tomatoes</td>
<td>starter solution</td>
<td>3.0 – 5.0 oz / 100 gal water</td>
</tr>
<tr>
<td></td>
<td>*Greenhouse chemotherapy</td>
<td>3.0 – 5.0 oz / 100 gal water</td>
</tr>
<tr>
<td></td>
<td>*Field chemotherapy</td>
<td>3.0 – 5.0 oz / 100 gal water</td>
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Herbs, Spices and Mints.

<table>
<thead>
<tr>
<th>Crops</th>
<th>Use</th>
<th>Application Rate of RootShield AG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Commercial seed treatment</td>
<td>0.0625 – 0.25 lb / 100 gal seed</td>
</tr>
<tr>
<td></td>
<td>Greenhouse soil drench</td>
<td>3.0 – 5.0 oz / 100 gal water</td>
</tr>
<tr>
<td></td>
<td>In-furrow spray or transplant starter solution</td>
<td>3.0 – 5.0 oz / 100 gal water</td>
</tr>
<tr>
<td></td>
<td>*Greenhouse chemotherapy</td>
<td>8.0 – 16.0 oz / 1/2 acre</td>
</tr>
<tr>
<td></td>
<td>*Field chemotherapy</td>
<td>3.0 – 5.0 oz / 100 gal water</td>
</tr>
</tbody>
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Hydroponic Crops:

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<tr>
<th>Crops</th>
<th>Use</th>
<th>Application Rate of RootShield AG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tomatoes, Cucumbers, Tomatoes, Lettuce, Herbs and Spices</td>
<td>starter solution</td>
<td>3.0 – 5.0 oz / 100 gal water</td>
</tr>
<tr>
<td></td>
<td>*Greenhouse chemotherapy</td>
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</tbody>
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Leafy and Brassica (Cole)

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<tr>
<th>Crops</th>
<th>Use</th>
<th>Application Rate of RootShield AG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roughs, Seed Production, Sod Preparation of golf course Parks, Established and New Walnuts Nuts, Pecans, Pistachios, Stone Fruits: Pears, Quince Pine Cassava, Ginger. Yams, Jerusalem Artichoke</td>
<td>Cutting or bare-rooted transplant dIP</td>
<td>0.33 – 1.0 lb / 6.67 gal water or dip directly into dry powder.</td>
</tr>
<tr>
<td></td>
<td>Commercial seed treatment</td>
<td>0.0004 – 0.529 lb / cwt seed</td>
</tr>
<tr>
<td></td>
<td>Greenhouse soil drench</td>
<td>3.0 – 5.0 oz / 100 gal water</td>
</tr>
<tr>
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<td>In-furrow spray or transplant starter solution</td>
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</tbody>
</table>

Biological Fungicide/hundredweight of seed. To assure uniform application, add half the required seed such as seed treated with Captan, Apron and or Demesan for stand establishment.

**SEED TREATMENT FOR TRUE SEED CROPS - ONSITE APPLICATION TO SEED:** For protection against root diseases, apply 1.5 - 8.0 ounces of RootShield AG Biological Fungicide/hundredweight of seed. For example, for large, smooth seeds such as soybean or dry bean, and smaller or rougher seeds such as peas and field corn, apply 1.5 - 3.0 ounces of RootShield AG Biological Fungicide/hundredweight of seed. For sweet corn, apply 1.5 - 3.0 ounces of RootShield AG Biological Fungicide/hundredweight of seed. To assure uniform application, add half the required amount of RootShield AG Biological Fungicide/hundredweight of seed to the hopper mix with a wooden paddle, and then add the remaining seed and RootShield AG Biological Fungicide. RootShield AG Biological Fungicide can also be applied in sufficient water to coat seeds. For maximum seed protection, especially in cold soils, apply RootShield AG Biological Fungicide to commercially treated seed such as seed treated with Captan, Apron and or Demesan for stand establishment.

SEED TREATMENT FOR VEGETATIVELY PROPAGATED CROPS (INCLUDING POTATOES, OTHER ROOT AND TUBER VEGETABLES, AND BULB VEGETABLES: For planting or storage, treat at 0.5 – 3.0 ounces RootShield AG Biological Fungicide per 100 lbs (1 cwt) of seed. Seed tubers or cut potato seed are typically dip-treated, either in a liquid or solid state. Where feasible, dip touches are used to drench seedlings in high relative humidity to promote suberization, thereby inhibiting disease. Seed tubers may be handled at the same moisture level as if untreated, and typically stored at 50-55°F, 80% relative humidity for storage. After planting, seed tubers should be placed at a 3-5 inch depth for best protection, or 4 inches deep or more for high relative humidity to promote suberization, or they may be planted immediately.

**DIP FOR CUTTINGS AND BARE-ROOTED PLANTS:** Dip cuttings and bare-rooted transplants in RootShield AG dry powder or in a suspension of 0.33 - 1.0 pound of RootShield AG Biological Fungicide in 6.67 gallons of water. For potatoes, apply RootShield AG Biological Fungicide with compatible chemical seed dusts. Consult your BioWorks Representative for more information. All surfaces, knives, and other equipment used to cut and plant potatoes should be thoroughly sterilized before cutting and planting and at regular intervals. The type of coated seed may influence the amount of seed required; 45-50% of coated seed may be handled at the same moisture level as if untreated, and typically stored at 50-55°F, 80% relative humidity for storage. After planting, seed tubers should be placed at a 3-5 inch depth for best protection, or 4 inches deep or more for high relative humidity to promote suberization, or they may be planted immediately.

DO NOT USE TREATED SEED FOR FOOD OR FEED PURPOSES OR PROCESS FOR OIL. Treat only those seeds needed for immediate use, minimizing interval between treating and planting. Do not store excess treated seeds beyond planting time.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Use</th>
<th>Application Rate of RootShield AG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root and tuber vegetables: Beets, Sugar Beets, Carrots, Celery, Chicory, Horseradish, Parsnip, Radish, Rutabaga, Saffron, Turnips</td>
<td>Planter Box (Onsite)</td>
<td>0.004 – 0.076 lb / cwt seed</td>
</tr>
<tr>
<td></td>
<td>Commercial seed treatment</td>
<td>1.0 – 10.0 oz / cwt seed</td>
</tr>
</tbody>
</table>

**SOIL DRENCH:**

**GREENHOUSE SOIL DRENCH:** Suspend 3.0 – 5.0 ounces of RootShield AG in 100 gallons of water with agitation, and apply prepared suspension as a soil drench to greenhouse planting mixes. For seedlings or shallow (up to 4-inch depth) beds or pots, apply prepared suspension at a rate of 50 - 100 gallons per 800 square feet. For deeper beds or pots, apply prepared suspension at a rate of 100 gallons per 400 square feet. 1/2 cup (4 fluid ounces) for pots with a 3-inch diameter, or 1 cup (8 fluid ounces) for pots with a 6-inch diameter. Apply RootShield AG directly to the soil through low pressure watering nozzles such as fan nozzles or other drench watering systems. Constant agitation is required to maintain RootShield AG in suspension. RootShield AG can be tank mixed and is compatible with many commonly used fungicides, liquid fertilizers, herbicides, insecticides and biological control products registered for use on greenhouse plants. If tank mixes are desired, observe the most restrictive of labeling limitations and precautions of all products used in mixtures. Consult the tank mix compatibility chart below or your BioWorks representative for more information.

**NURSERY SOIL DRENCH:** Suspend 3.0 – 5.0 ounces of RootShield AG in 100 gallons of water with agitation, and apply prepared suspension as a soil drench to nursery plant mixes. For shallows (up to 4-inch depth) beds or pots, apply prepared suspension at a rate of 50 - 100 gallons per 800 square feet. For deeper beds or pots, apply prepared suspension at a rate of 100 gallons per 400 square feet. 1/2 cup (4 fluid ounces) for pots with a 3-inch diameter, or 1 cup (8 fluid ounces) for pots with a 6-inch diameter. Apply RootShield AG directly to the soil through low pressure watering nozzles such as fan nozzles, other drench watering systems, handheld sprayers or backpack sprayers. Consult the tank mix compatibility chart below or your BioWorks representative for more information.

**IN-FURROW SPRAY OR TRANSPLANT STARTER SOLUTION:** Apply RootShield AG Biological Fungicide in a narrow spray or transplant starter solution at a rate of 0.0 – 16.0 ounces / 100 gal water to be sufficient water to achieve uniform application. Maintain constant agitation. RootShield AG Biological Fungicide can be tank mixed and is compatible with many commonly used fungicides, liquid fertilizers, herbicides, insecticides and biological control products. If tank mixes are desired, observe the most restrictive of labeling limitations and precautions of all products used in mixtures. Consult the tank mix compatibility chart below or your BioWorks representative for more information.

**ORNAMENTAL CROPS**

<table>
<thead>
<tr>
<th>Crops</th>
<th>Use</th>
<th>Application Rate of RootShield AG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arugula, Echinacea, Texas bluegrass, ryegrass, very Fine (100.000 – 500.000) such as: bermotis</td>
<td>Fine (10.000 – 100.000) such as: tomatoes</td>
<td>0.16 – 120 g</td>
</tr>
</tbody>
</table>

...
TANK MIXING: RootShield AG Biological Fungicide can be tank mixed and is compatible with many commonly used fungicides, liquid fertilizers, herbicides and biological soil products. If tank mixes are desired, observe the most restrictive of labeling limitations and precautions of all products used in mixtures. Consult the tank mix compatibility chart below or your BioWorks representative for more information. This product must not be tank-mixed with chemicals that contain the following active ingredients: imidazol, propiconazole, tebuconazole, and triflumizole. Do not apply RootShield AG Biological Fungicide immediately before these pesticides are used.

In accordance with the most restrictive of label limitations and precautions (for all products used in a tank mixture), this product can be mixed with specific products (see table immediately below), their active ingredient percentages and their application rates for use in greenhouse soil drench, nursery soil drench, in-furrow spray and transplant starter solution. Do not exceed label dosage rates. This product cannot be mixed with any product containing a label prohibition against such mixing.

COMPATIBILITY CHART FOR GREENHOUSE SOIL DRENCH, NURSERY SOIL DRENCH, IN-FURROW SPRAY OR TRANSPLANT SOLUTION STARTER MIXES:

Note: While the information presented in this table is believed to be up-to-date, the user must always read the label of the other products used in a tank mix to confirm application rates and dilutions.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>% A.L. Formulation Type</th>
<th>Product Name</th>
<th>Application Rate (Amount of Product / Unit Area)</th>
<th>Dilution (Amount of Product / Amount of Water)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captain</td>
<td>85.0%, Wettability Powder</td>
<td>Captain 85 WP</td>
<td>1.88 lb/Acre</td>
<td>0.1 oz/gal</td>
</tr>
<tr>
<td>Chlorthalonil</td>
<td>85.5%, Water Dispersible Granules</td>
<td>Dacron Ultra</td>
<td>3.7 oz/1000 sq. ft.</td>
<td>0.56 oz/gal</td>
</tr>
<tr>
<td>Iprodione</td>
<td>23.3%, Flowable Granules</td>
<td>Chipico 26019 Flo</td>
<td>4.0 oz/100 sq. ft.</td>
<td>0.6 oz/gal</td>
</tr>
<tr>
<td>Iprodione</td>
<td>50.0%, Soluble Granules</td>
<td>Royal</td>
<td>0.75 lb/acre</td>
<td>0.04 oz/gal</td>
</tr>
<tr>
<td>Thiophanate methyl</td>
<td>50.0% Water Dispersible Granules</td>
<td>Clearay 3336 in water soluble bags</td>
<td>8.0 oz/100 sq. ft.</td>
<td>1.2 oz/gal</td>
</tr>
<tr>
<td>Metalaxyl</td>
<td>27.3%, Liquid</td>
<td>Subdue Maxx</td>
<td>0.25 oz/800 sq. ft.</td>
<td>0.05 oz/gal</td>
</tr>
<tr>
<td>Chippyril</td>
<td>26.5%, Emulsifiable Liquid</td>
<td>London 4E</td>
<td>3.2 oz/gal</td>
<td>3.2 oz/gal</td>
</tr>
</tbody>
</table>

GREENHOUSE AND FIELD CHEMIGATION

Suspend 3.0 – 5.0 ounces ROOTSHIELD AG in 100 gallons of water with agitation and apply only through the following systems: 1) pressurized drench (flood or drip) (trickle), 2) furrow, 3) micro irrigation such as spaghetti or individual tube irrigation, 4) hand-held calibrated irrigation equipment such as the hand-held wand with injector, and 5) ebb and flow. Do not apply this product through any other type of irrigation system.

Crop 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 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 systems 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 a depth 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 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.

5) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pressure pump may encounter in some 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) Apply RootShield AG during the last half of the water application period. Mix RootShield AG enough water to be able to draw through the system for the last half of the water application. Maintain constant agitation.

8) Apply enough water to move RootShield AG into the root zone. Amounts will vary depending on soil type and existing moisture level. Do not apply water volumes that would cause runoff or excessive leaching.

Flood and Furrow Chemigation Requirements:

1) Systems using a gravity flow pesticide dispersing 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) Apply RootShield AG during the last half of the water application period. Mix RootShield AG enough water to be able to draw through the system for the last half of the water application. Maintain constant agitation.

4) Apply enough water to move RootShield AG into the root zone. Amounts will vary depending on soil type and existing moisture level. Do not apply water volumes that would cause runoff or excessive leaching.

PLANT SAFETY: RootShield AG Biological Fungicide has been tested on numerous plant varieties with no phytotoxic effects. However, since RootShield AG Biological Fungicide has not been tested on all plant varieties or in combination with all available tank mixers the manufacturer recommends testing RootShield AG Biological Fungicide on a small number of plants to check for adverse plant effects before applying to a larger number of plants.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in a cool, dry place. Do not store at temperatures above 75°F for prolonged periods. Keep container tightly closed when not in use.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product must be disposed of on-site or at an approved waste disposal facility.

CONTAINER HANDLING: Nonrefillable container. Do not reuse or refill this container. Completely empty bag by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then offer for recycling if available, or dispose of empty bag in sanitary landfill or by incineration. Do not burn, unless allowed by state and local ordinances. If burned, stay out of smoke. If outer box is contaminated, dispose of in same manner as required for the bag.

NOTICE TO BUYER AND SELLER: Seller warrants that this product conforms to the description on this label and is reasonably fit for the purposes stated on this label when used and stored in accordance with directions for use. This warranty does not extend to use of this product contrary to label directions or under conditions not reasonably foreseeable by the Seller, and Buyer and User assume the risk of any such use. To the extent consistent with applicable law, Seller disclaims all other warranties, express or implied, including any warranty of fitness or merchantability. To the extent consistent with applicable law, Seller shall not be liable for consequential, special or indirect damages resulting from use or handling of this product, and Seller’s sole liability and Buyer’s and User’s exclusive remedy shall be limited to refund of the purchase price. This product is sold only for uses stated on its label.