OPPORTUNE™

Pre and Post-Emergent Herbicide

For the control of listed annual grasses, broadleaf and sedge weeds.

Active ingredient: Killed, non-viable Streptomyces acidiscabies strain RL-110T cells and spent fermentation media* ..............................................17%
Other ingredients: ................................................................................................................83%
Total: ...................................................................................................................................100%
* Product contains not less than 4 mg/ml Thaxtomin A.

EPA Reg. No. 84059-12

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

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

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call poison control center or doctor for treatment advice.

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

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.

HOT LINE NUMBER

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.

CAN BE USED IN ORGANIC PRODUCTION

OMRI LISTED

Marrone Bio Innovations

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Davis, CA 95618 USA
info@marronebio.com

NET CONTENTS: ______________

OPP-13-01 Lot #:
PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye and skin irritation. Harmful if inhaled, swallowed or absorbed through skin. Avoid contact with eyes, skin or clothing. Avoid breathing spray mist. Wear goggles or safety glasses and waterproof gloves. 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 (PPE):
Applicators and other handlers must wear:
• Long sleeved shirt and long pants
• Shoes plus socks
• Waterproof gloves

Mixer/loaders and applicators, not in aircraft or enclosed cabs, must wear a filtering face piece 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 the manufacturer’s instructions for cleaning/maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

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

Environmental Hazards: For terrestrial uses: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

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 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 exemptions pertaining to the statements on this label about personal protective equipment (PPE) and the restricted entry interval (REI). 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

Exception: If the product is soil-injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated areas if there will be on contact with anything that has been treated.
PRODUCT INFORMATION

OPPORTUNE™ is a selective biological herbicide for use on specific weeds in crops listed. When applied as a pre-emergence herbicide, OPPORTUNE controls annual grasses, broadleaf, and sedge weeds as they germinate. OPPORTUNE is also a selective post-emergent herbicide for control or suppression of broadleaf and sedge weeds infesting labeled crops. The concentrate of OPPORTUNE must be mixed with water and applied as a spray with ground or aerial equipment equipped for conventional herbicide spraying.

Mode of action: OPPORTUNE inhibits cellulose biosynthesis in the meristem of sensitive plant species. When weeds germinate in the treated area, they contact the herbicide and both shoot and root growth stops.

Close scouting and early attention to infestations is highly recommended. Proper timing of application prior to weed germination and/or for targeting newly emerged weeds is important for optimal results.

USE RESTRICTIONS

Do not apply this product through any type of chemigation system.

Do not apply this product when wind conditions will allow drift to adjacent, broadleaf ornamental plants or to crops.

Do not apply to pasture, grazing lands or grasses grown for hay.

MIXING INSTRUCTIONS

- SHAKE WELL PRIOR TO USE -

Important – Do not add OPPORTUNE to the mix tank before introducing the desired amount of water. Add water to the mix tank. Start the mechanical or hydraulic agitation to provide moderate circulation before adding OPPORTUNE. Add the desired volume of OPPORTUNE to the mix tank and continue circulation. Maintain circulation while loading and spraying. Do not mix more OPPORTUNE than can be used in 24 hours. Use a strainer no finer than 50 mesh in conventional spray systems.

TANK MIXING

This product can be tank mixed in accordance with the most restrictive of label limitations and precautions. No label dosage rates may be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing.

To ensure compatibility of tank mix combinations they must be evaluated prior to use. 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 one quart of water with agitation. Add dry formulations first, then flowables, then emulsifiable concentrates last. After thoroughly mixing, let this mixture stand for five 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 required ingredients to the spray tank.

APPLICATION INSTRUCTIONS

Under heavy weed populations, use the higher label rates and/or increase the spray volume to improve coverage.

GROUND APPLICATIONS

Apply OPPORTUNE with quantities of water sufficient to provide uniform coverage of the soil or foliage of targeted weed species. The amount of water needed per acre will depend upon application equipment.

Use sprayers equipped with appropriate nozzles that provide uniform and accurate spray distribution and minimize drift. Nozzle and in-line screens must be no finer than 50 mesh.

Ground Applications (Band)

Apply OPPORTUNE uniformly at the broadcast equivalent rate and volume per acre. To determine these:

\[
\text{band width in inches} \times \text{broadcast rate per acre} = \text{band rate per acre}
\]

\[
\text{row width in inches} \times \text{broadcast rate per acre} = \text{row rate per acre}
\]
AERIAL DRIFT REDUCTION ADVISORY INFORMATION

GENERAL: Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. Where states have more stringent regulations, they should be observed. Note: This section is advisory in nature and does not supersede the mandatory label requirements.

INFORMATION ON DROPLET SIZE: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply droplets large enough to provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

CONTROLLING DROPLET SIZE: Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Pressure - Do not exceed the nozzle manufacturer’s recommended pressures. For many nozzle types lower pressure produces larger droplets. When high flow rates are needed, use higher flow rate nozzles instead of increasing pressure. Number of nozzles - Use the minimum number of nozzles that provide uniform coverage. Nozzle Orientation - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential. Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-droplet nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

BOOM WIDTH: For aerial applications, the boom width must not exceed 75% of the wingspan or 90% of the rotary blade. Use upwind swath displacement and apply only when wind speed is 3-10 mph as measured by an anemometer. Use medium or coarser spray according to ASAE 572 definition for standard nozzles or VMD for spinning atomizer nozzles. If application includes a no-spray zone, do not release spray at a height greater than 10 feet above the ground or crop canopy.

APPLICATION HEIGHT: Do not make application at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure to droplets to evaporation and wind.

SWATH ADJUSTMENT: When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

WIND: Drift potential is lowest between wind speeds of 2 - 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

TEMPERATURE AND HUMIDITY: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

TEMPERATURE INVERSIONS: Do not apply during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

SENSITIVE AREAS: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas). Do not allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, non-target crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals.
OF MANY power are own, they elements. The Applying favorable Nozzles mended use zles thatirstream orizontal intended nozzles. 

FOR USE AS A PRE-EMERGENT HERBICIDE ON THE FOLLOWING CROPS FOR CONTROL OF SPECIFIED WEEDS:

Applications must be made prior to transplanting or prior to crop emergence. Do not apply to emerged broadleaf crops except for ground applications made between the rows with the use of shielded applicators.

APPLICATION AND TIMINGS FOR ALL CROPS LISTED

OPPORTUNE will provide effective weed control when applied by ground or aerial equipment and subsequently incorporated into the soil by rainfall, sprinkler irrigation, or mechanical tillage prior to weed seedling emergence from soil.

Pre-plant Surface Applications: For use in minimum tillage or no-tillage production systems, apply OPPORTUNE alone or in tank mixes before planting. Rainfall or sprinkler irrigation after application is required to move this product into the upper soil surface where weed seeds germinate.

Pre-plant Incorporated Applications: Apply OPPORTUNE and incorporate into the upper (1 inch to 2 inches) soil surface prior to planting. Use an implement capable of giving uniform incorporation.

Surface Incorporated Applications: Uniformly apply OPPORTUNE as a broadcast or banded treatment to soil surface underneath established trees and/or in ground areas between tree rows. Incorporate into upper soil surface using either rainfall, sprinkler irrigation, or shallow mechanical incorporation using an implement capable of giving uniform incorporation.

Pre-emergence Surface Applications: Broadcast OPPORTUNE uniformly to the soil surface at planting. Rainfall, sprinkler irrigation, or shallow mechanical incorporation after application is required to move this product into the upper soil surface where weed seeds germinate. If adequate rainfall does not occur and irrigation is not available, use of shallow cultivation or rotary hoeing is required.

Pre-harvest Interval (PHI) = 0 days

<table>
<thead>
<tr>
<th>Pre-Emergent Crops</th>
<th>Application Method</th>
<th>Product Use per Application</th>
<th>Application Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artichoke</td>
<td>Ground</td>
<td>8 - 12 quarts per acre</td>
<td>Apply in 10 - 40 gallons of water per acre.</td>
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<tr>
<td>Asparagus</td>
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<tr>
<td>Bulb Vegetables (garlic, onion and shallots- transplanted sets only)</td>
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<tr>
<td>Cereal Grains (barley, millet, oats, rice, rye, sorghum, triticale and wheat)</td>
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<tr>
<td>Citrus (bearing and nonbearing)</td>
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<tr>
<td>Cole Crops- Brassicas (broccoli, brussel sprouts, cabbage, cauliflower and collards- transplanted sets only)</td>
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<tr>
<td>Cotton</td>
<td></td>
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<tr>
<td>Cucurbits (cantaloupe, cucumber, melon, muskmelon, pumpkin, squash, watermelon and zucchini- transplanted sets only)</td>
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<tr>
<td>Fruiting Vegetables (eggplant, ground cherry, okra, peppers, tomatillo and tomato- transplanted sets only)</td>
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<tr>
<td>Grapes</td>
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<tr>
<td>Hops</td>
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<tr>
<td>Legumes (beans, chick peas, dry beans, garbanzo beans, green beans, lentils, lima beans, peanuts, peas, shell beans, snap beans, soybeans and split peas)</td>
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<tr>
<td>Olives</td>
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<tr>
<td>Pome Fruit (apple, crabapple, mayhaw, pear and quince)</td>
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(continued)
### Pre-Emergent Crops

<table>
<thead>
<tr>
<th>Root, Tuber and Corn Crops (ginger, ginseng, potato and sweet potato)</th>
<th>Application Method</th>
<th>Product Use per Application</th>
<th>Application Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stone Fruits (apricot, cherry, nectarine, peach, plum and prune)</td>
<td>Ground</td>
<td>8 - 12 quarts per acre</td>
<td>Apply in 10 - 40 gallons of water per acre.</td>
</tr>
<tr>
<td>Strawberries (transplanted sets only)</td>
<td>Ground</td>
<td>8 - 12 quarts per acre</td>
<td>Apply in 10 - 40 gallons of water per acre.</td>
</tr>
<tr>
<td>Tree Nut Crops (almond, beechnut, butternut, cashew, chestnut, filbert, macadamia, pecan, pistachio and walnut)</td>
<td>Ground</td>
<td>8 - 12 quarts per acre</td>
<td>Apply in 10 - 40 gallons of water per acre.</td>
</tr>
<tr>
<td>Tropical Fruits (avocado, banana, kiwi, mango, papaya, pineapple, plantain and pomegranate)</td>
<td>Ground</td>
<td>8 - 12 quarts per acre</td>
<td>Apply in 10 - 40 gallons of water per acre.</td>
</tr>
</tbody>
</table>

### Pre-Emergent Target Pests

#### Grasses
- Annual ryegrass (*Lolium rigidum*)
- Barnyardgrass (*Echinochloa crus-galli*)
- Bluegrass, annual (*Poa annua*)
- Brome (*Bromus spp.*)
- Canarygrass (*Phalaris arundinacea*)
- Crabgrass (*Digitaria spp.*)
- Crowdfootgrass (*Dactylolctenium aegyptium*)
- Dallisgrass, seedling (*Paspalum dilatatum*)
- Foxtail, giant (*Setaria faber*)
- Foxtail, green (*Setaria viridis*)
- Foxtail, yellow (*Setaria glauca*)
- Goosegrass (*Eleusine indica*)
- Crabgrass (*Digitaria spp.*)
- Purslane, common (*Portulaca oleracea*)
- Purslane, Florida (*Richardia scabra*)
- Rush (*Juncus spp.*)
- Smartweed, Pennsylvania (*Polygonum pensylvanicum*)
- Speedwell, corn (*Veronica arvensis*)
- Wood sorrel, creeping (*Oxalis cernua*)
- Ragweed, common (*Ambrosia artemisiaefolia*)
- Ragweed, giant (*Ambrosia trifida*)
- Shephardspurse (*Capsella bursa-pastoris*)
- Spurge, garden (*Euphorbia hirta*)
- Spurge, annual (*Euphorbia spp.*)
- Spurge, prostrate (*Chamaesyce humistrata*)
- Spurge, yellow (*Oxalis stricta*)
FOR USE AS A POST-EMERGENT HERBICIDE ON THE FOLLOWING CROPS FOR CONTROL OF SPECIFIED WEEDS:

Pre-harvest Interval (PHI) = 0 days

<table>
<thead>
<tr>
<th>Post-Emergent Crops</th>
<th>Application Method</th>
<th>Product Use per Application</th>
<th>Application Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereal Grains- excluding rice* (barley, corn, milo, oats, pearl millet, popcorn, proso millet, rye, sorghum, sweet corn, triticale and wheat)</td>
<td>Ground</td>
<td>8 - 12 quarts per acre</td>
<td>Apply in 20 - 40 gallons of water per acre. Applications of OPPORTUNE as a post-emergent herbicide must be targeted against weeds that are 2 inches in height or less. Thorough coverage of weed foliage is necessary for effective control. OPPORTUNE does not have systemic activity. A spreader/sticker or adjuvant which has been approved for growing crops can be added for hard to wet weed species.</td>
</tr>
<tr>
<td>Sod farms and grass grown for seed</td>
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</tr>
</tbody>
</table>

Post-Emergent Target Pests

**Broadleaf Weeds (dicotyledons):**

- Amaranth, Powell (*Amaranthus powelli*)
- Bedstraw, catchweed (*Galium aparine*)
- Beggarweed, Florida (*Desmodium tortuosum*)
- Buckwheat, wild (*Plygonum convolvulus*)
- Buffalo bur (*Solanum rostratum*)
- Burhead (*Echinodorus cordifolius*)
- Carpetweed (*Mollugo verticillica*)
- Cocklebur, common (*Xanthium strumarium*)
- Deadnettle, purple (*Lamium purpurium*)
- Devil’s claw (*Proboscidea louisianica*)
- Galinsoga (*Galinsoga parviflora*)
- Henbit (*Lamium amplexicaule*)
- Horseweed- marestail (*Conyza Canadensis*)
- Jimsonweed (*Datura stramonium*)
- Kochia (*Kochia scoparia*)
- Lambquarter, common (*Chenopodium album*)
- Mallow, Venice (*Hibiscus trionum*)
- Mustard, wild (*Brassica kaberov*)
- Nightshade, black (*Solanum nigrum*)
- Nightshade, eastern black (*Solanum ptycanthum*)
- Redstem (*A Common Arrowhead, Arrowhead, Naiads- wa Sedge, sm Sedge, sm Bulrush, ric
- Common w
- Pesticide S
- Pesticide I
- Container

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Container

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### Post-Emergent Crops

<table>
<thead>
<tr>
<th>Post-Emergent Crops</th>
<th>Application Method</th>
<th>Product Use per Application</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>Ground Aerial</td>
<td>8 - 12 quarts per acre</td>
<td>Apply in 20 - 40 gallons of water per acre by ground or 10 – 20 gallons of water by air.</td>
</tr>
</tbody>
</table>

**Water Seeded Rice:** Apply a single post-flood application. Fields must be partially drained to expose weeds prior to application. Target weed species that are at least 70% exposed. Re-flood the field 24 to 48 hours after application of OPPORTUNE.

**Dry Seeded Rice:** Apply OPPORTUNE prior to permanent flood. Flood the field 24 – 28 hours after application.

### Post-Emergent Target Pests

#### Broadleaf Weeds (dicotyledons):
- **Redstem (Ammania sp.)**
- **Common waterplantain (Alisma plantago-aquatica)**
- **Arrowhead, California (Sagittaria montevidensis)**
- **Arrowhead, Gregg (Sagittaria longiloba)**
- **Naiads- water nymphs (Najas spp.)**

#### Sedges and Rushes
- **Sedge, smallflower umbrella (Cyperus difformis)**
- **Bulrush, river (Scirpus fluviatilis)**
- **Bulrush, ricefield (Scirpus mucronatus)**
- **Flatsedge, ricefield (Cyperus iria)**

### STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store in a cool dry place. Avoid freezing.

**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 or by industry). Pesticide wastes may be toxic. Improper disposal of unused pesticide, washwater or rinse water is a violation of federal law.

**Container Handling:** Non-refillable container. Do not reuse or refill this container.

Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¾ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill or by incineration. Do not burn unless allowed by state and local ordinances.
MARRONE BIO INNOVATIONS
WARRANTY

To the extent consistent with applicable law, the seller makes no warranty, expressed or implied, of merchantability, fitness or otherwise concerning use of this product. The user assumes all risks of use, storage or handling that are not in strict accordance with the accompanying directions.

Label date:
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