

# RESTORE<sup>S.M.A.R.T</sup>

SELECTIVE MANAGEMENT AQUATIC RESTORATION TOOL™

## AQUATIC HERBICIDE

### DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying. SHAKE WELL BEFORE USING.

### PRODUCT INFORMATION

This product is a selective translocated aquatic herbicide. Applied to freshwater ponds, lakes, reservoirs, drainage canals and irrigation canals, this product helps manage undesirable aquatic weeds. Susceptible aquatic vascular plants absorb this product through the shoots and roots. For effective control, contact of this product with the target plants must be maintained for at least 45 days. Effective control is reduced if conditions exist that dilute the concentration of this product in the water. The mode of action of this product involves inhibition of carotene synthesis in the target weeds. Lack of carotene in plants causes the chlorophyll to break down when the plants are exposed to sunlight. New shoot growth on target weeds begins to turn chlorotic (white) or pink in color within 7 to 10 days of exposure to this product. Ideally, 30 to 90 days of continuous exposure to this product will provide optimum control of target weeds.

Some plant species may not be controlled by this product under all conditions. Factors affecting herbicide performance include growth stage of the target weed, the time of year when this product is applied, and dilution or movement of treated water.

Optimum results are achieved when this product is applied before weeds begin to actively grow. For mature plants, the higher application rates will be required and effects due to treatment will take longer to observe.

A suitable analysis of the water to determine the concentration of this product is highly recommended. The most common method of water analysis for measuring fluridone concentrations which is recommended is the Enzyme-Linked Immunoassay (ELISA Test). Contact Applied Biochemists for information on this test when using this product in treatment programs.

Application rates are shown in fluid ounces or quarts of this product to achieve a desired concentration of the active ingredient in parts per billion by weight (ppbw).

### PRECAUTIONS

- **Permits:** Consult with appropriate state or local water authorities before applying this product since state or local agencies may require permits to use this product.
  - **Chemigation:** Do not apply this product through any type of irrigation system.
  - **Hydroponic Farming:** Do not use this product treated water for hydroponic farming.
  - **Greenhouse and Nursery Plants:** Do not use water which has been treated with this product to irrigate greenhouse or nursery plants unless chemical assays of the water indicate fluridone residues are less than one parts per billion (ppb).
  - **Maximum Use Rates:** Do not apply more than a total of 90 ppb in ponds and 150 ppb in lakes and reservoirs per annual growth cycle. These maximum concentrations are the amounts of fluridone calculated as the target application rate, NOT the concentration determined by analysis of fluridone in the treated water.
  - **Waiting Periods:** If application rates are 150 ppb or less, treated water may be used immediately with no waiting period for drinking (potable) water (including watering livestock and pets), fishing or swimming. See specific restrictions below for Potable Water Intakes and Irrigation.
  - **Potable Water Intakes:** In lakes and reservoirs or other sources of potable water, DO NOT APPLY this product at application rates greater than 20 ppb within ¼ mile (1320 feet) of any functioning potable water intake. If rates are between 6 and 20 ppb, this product MAY BE APPLIED where functioning potable water intakes are present.
- Note: Existing potable water intakes which are no longer in use, such as those replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water.
- **Irrigation:** Irrigation using water treated with this product may injure the irrigated vegetation.

Instruct those who use treated water to follow the recommended waiting periods listed in the table below and to assay the water for fluridone residues. For crops grown on low organic and sandy soils and irrigated with treated water, the potential for crop injury is greater than for crops grown on heavier soils. If a shorter waiting period is desired for irrigation of crops using treated water, use a suitable analysis (ELISA or other methods) to measure the concentration of fluridone in the treated water. If the concentration of fluridone is less than 10 ppb, established tree crops, established row crops or turf can be irrigated with treated water. If the concentrations of fluridone are greater than 5 ppb, tobacco, tomatoes, peppers or other plants within the *Solanaceae* Family and newly seeded crops or newly seeded grasses such as overseeded golf course greens should NOT be irrigated with treated water.

Rotation Crops: Do not plant members of the *Solanaceae* family on land that has been previously irrigated with water containing more than 5 ppb of fluridone. Consult an aquatic specialist prior to commencing irrigation of such sites.

Number of Days to Wait After This Product Application Before Irrigating with Treated Water			
Product Application Sites <sup>a</sup>	Established Tree Crops	Established Row Crops/Turf/Plants	Newly Seeded Crops/Seedbed or Areas To Be Planted Including Overseeded Golf Course Greens
Ponds and Static Canals	7	30	Assay required
Canals	7	14	Assay required
Lakes and Reservoirs	7	14	Assay required

<sup>a</sup>**Ponds:** For this product labeling purposes, a pond is defined as a body of water 10 acres or less in size. **Lakes or Reservoirs:** For this product labeling purposes, a lake or reservoir is defined as greater than 10 acres in size. When only one-half or more of the lake or reservoir is treated, follow the Pond and Static Canal precautions.

EPA Reg. No. 8959-57  
EPA Est. No. 86088-PA-001  
EPA Est. No. 61842-CA-001

A herbicide for management of aquatic vegetation in freshwater ponds, lakes, reservoirs, potable water sources, drainage canals and irrigation canals.

### ACTIVE INGREDIENT: Fluridone:

1-methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-4(1H)-pyridinone.....41.7%

INERT INGREDIENTS.....58.3%

TOTAL.....100.0%

Contains 4 pounds active ingredient per gallon.

### KEEP OUT OF REACH OF CHILDREN

### CAUTION/PRECAUCIÓN

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

Product of China -

Formulated and Packaged in the United States with US and imported ingredients

Manufactured for:

 **applied biochemists®**

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### AQUATIC PLANT INFORMATION

Depending on the use rate, water movement, application timing, weed growth stage and application method, this product will control, partially control, or will not control certain aquatic plant species.

The tables below categorize the species when this product is applied under ideal application conditions at higher to maximum label rates. When lower rates are used, certain species in the controlled or partially controlled categories will show increased tolerance to this product.

Aquatic plants not listed may also be controlled, partially controlled, or be tolerant to this product. Before applying this product, identify the aquatic plants to determine their susceptibility to this product.

Vascular Aquatic Plants <b>Controlled</b> by This Product			
Floating Plants	Emersed Plants	Submersed Plants	Shoreline Grasses
common duckweed (Lemna minor)	spatterdock (Nuphar luteum) water-lily (Nymphaea spp.)	naiad (Najas spp.) fanwort, cabomba (Cabomba caroliniana) common coontail (Ceratophyllum demersum) hydrilla (Hydrilla verticillata) bladderwort (Utricularia spp.) pondweed (Potamogeton spp., except Illinois pondweed) watermilfoil (Myriophyllum spp., except variable-leaf milfoil) egeria, Brazilian elodea (Egeria densa) common elodea (Elodea canadensis)	paragrass (Urochloa mutica)

Vascular Aquatic Plants <b>Partially Controlled</b> by This Product			
Floating Plants	Emersed Plants	Submersed Plants	Shoreline Grasses
common watermeal (Wolffia columbiana) <sup>†</sup>	alligatorweed (Alternanthera philoxeroides) American lotus (Nelumbo lutea) cattail (Typha spp.) creeping waterprimrose (Ludwigia peploides) parrotfeather (Myriophyllum aquaticum) waterpurslane (Ludwigia palustris) watershield (Brasenia schreberi) smartweed (Polygonum spp.) spikerush (Eleocharis spp.)	Illinois pondweed (Potamogeton illinoensis) limnophila (Limnophila sessiliflora) tapegrass American eelgrass (Vallisneria americana) watermilfoil variable-leaf milfoil (Myriophyllum heterophyllum)	barnyardgrass (Echinochloa crusgalli) giant cutgrass (Zizaniopsis miliacea) reed canarygrass (Phalaris arundinaceae) southern watergrass (Hydrochloa carolinensis) torpedogras (Panicum repens)

<sup>†</sup> This product when used at the maximum use rate only provides partial control of this species.

Vascular Aquatic Plants <b>Not Controlled</b> by This Product*			
Floating Plants	Emersed Plants	Submersed Plants	Shoreline Grasses
waterlettuce (Pistia stratiotes)	American frogbit (Limnobium spongia) arrowhead (Sagittaria spp.) bacopa (Bacopa spp.) big floatingheart, banana lily (Nymphoides aquatica) bulrush (Scirpus spp.) floating waterhyacinth (Eichhornia crassipes) pickerelweed, lanceleaf (Pontederia spp.) rush (Juncus spp.) water pennywort (Hydrocotyle umbellata)		maidencane (Panicum hemitomon)

\*Note: This product does not control algae (Chara, Nitella, and single-cellular, colonial and filamentous species).

### PREPARATION OF SPRAY SOLUTIONS OF THIS PRODUCT

Determine the amount of area (acres) to be treated. Water depths in the treatment sites should also be known so that the correct application rate is selected.

Use the steps below to prepare spray mixtures of this product:

1. Be sure to shake well the containers of this product before adding the product to the spray tank during mixing and loading operations.
2. Add ½ to ¾ the required amount of water to the spray tank. Begin agitation of the spray mixture and continue agitation during the mixing operations.
3. Add the required amount of this product to the spray tank during the remainder of the mixing operation.
4. Continue agitation of the spray mixture during the herbicide application operation. Make surface or subsurface applications using conventional spray equipment. Use weighted trailing hoses to apply this product near the surface of the hydrosol. Make applications with a spray volume of 5 to 100 gallons per acre. A metering system which mixes concentrated product with water and then introduces this slurry into the suction side of the application equipment may also be used.

Note: This product is not corrosive to application equipment.

### Tank Mix Information

Tank mixes of this product with other aquatic herbicides and algacides labeled for this use may provide greater efficacy and broader weed control or plant selectivity. Refer to the label for the herbicide or algacide used as a tank mix with this product for use directions, precautions, and restrictions. Other aquatic herbicides and algacides used with this product in a tank mix must be used in accordance with the most restrictive label limitations and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against mixing.

### DIRECTIONS FOR APPLICATION - PONDS

For additional application rate calculations, refer to the section How To Calculate Application Rates at the end of this label.

Average Water Depth of Treatment Site in Feet	Fluid Ounces (or Qts.) of This Product per Treated Acre To Achieve Desired Herbicide Concentration:	
	45 ppb	90 ppb
1	3.8 fl. oz. (0.12 qts.)	7.7 fl. oz. (0.24 qts.)
2	7.7 (0.24)	15.7 (0.49)
3	11.8 (0.37)	23.4 (0.73)
4	15.7 (0.49)	31.4 (0.98)
5	19.5 (0.61)	39.0 (1.22)
6	23.4 (0.73)	46.7 (1.46)
7	27.2 (0.85)	54.4 (1.70)
8	31.4 (0.98)	62.4 (1.95)
9	35.2 (1.1)	70.1 (2.19)
10	39.0 (1.22)	78.1 (2.44)

**Application Directions** - Apply this product to the entire surface area of the pond. **Single Applications:** Use the amount of this product listed to give 45 to 90 ppb fluridone in treated water. Higher rates should be used for dense weed infestations, for difficult-to-control species, and for smaller ponds (less than 5 acres in size and average water depths of less than 4 feet). **Split or Multiple Applications:** Use when dilution of the treated water is likely to occur. Do not exceed 90 ppb per annual growth cycle.

### DIRECTIONS FOR APPLICATION – LAKES AND RESERVOIRS

This product may be used for treatment of both whole lakes and reservoirs and partial areas of lakes or reservoirs (bays and coves). Target weeds in partial lake and reservoir treatments which are at least 5 acres in size are more effectively treated with this product than smaller size areas. Smaller treatment areas (less than 5 acres) or narrow strips such as boat trails or shorelines may not produce satisfactory results as this product may be diluted with untreated water. Due to a number of environmental factors, rate ranges are provided. Select the rates and application methods based on the specific goals of the aquatic plant management program at each different site.

#### Whole Lake or Reservoir Treatments (Limited or No Water Discharge)

**Single Application to Whole Lakes or Reservoirs:** Apply this product at an application rate of between 10 and 90 ppb. Consult the table below for the amount of this product required to achieve these concentrations in the treated water. Rates should be based on the goals of the aquatic plant management program. If control of Eurasian watermilfoil and curlyleaf pondweed is desired or for greater plant selectivity, use an application rate lower in the range. For other plant species, contact an aquatic specialist to help determine when to choose lower application rate.

The higher rates within the rate range can be used when dense weed infestations are present or when treating hard-to-control weed species. Additional applications may be required to control more difficult-to-control species or when dilution of the treatment concentration has occurred such as from a heavy rainfall. If multiple applications are made, do not exceed 150 ppb (the sum of all applications) per annual growth cycle. Read the directions below on Split or Multiple Applications. For additional application rate calculations, refer to the section How To Calculate Application Rates at the end of this label.

Rates For Single Application of this Product

Average Water Depth of Treatment Site in Feet	Fluid Ounces (or Qts.) of This Product per Treated Acre To Achieve Desired Herbicide Concentration:		Continued.		
	10 ppb	90 ppb	Fluid Ounces (or Qts.) of This Product per Treated Acre To Achieve Desired Herbicide Concentration:		
			10 ppb	90 ppb	10 ppb
1	1.0 fl. oz. (0.03 qts.)	7.7 fl. oz. (0.24 qts.)	11	9.6 (0.30)	86.0 (2.68)
2	1.6 (0.05)	15.7 (0.49)	12	10.2 (0.32)	93.8 (2.93)
3	2.6 (0.08)	23.4 (0.73)	13	11.2 (0.35)	101.4 (3.17)
4	3.2 (0.11)	31.4 (0.98)	14	12.1 (0.38)	109.4 (3.42)
5	4.5 (0.14)	39.0 (1.22)	15	13.1 (0.41)	117.1 (3.66)
6	5.1 (0.16)	46.7 (1.46)	16	13.8 (0.43)	124.8 (3.90)
7	6.1 (0.19)	54.4 (1.70)	17	14.7 (0.46)	132.2 (4.15)
8	7.0 (0.22)	62.4 (1.95)	18	15.7 (0.49)	140.5 (4.39)
9	7.6 (0.24)	70.1 (2.19)	19	16.3 (0.51)	148.2 (4.63)
10	8.6 (0.27)	78.1 (2.44)	20	17.3 (0.54)	156.2 (4.88)

**Split or Multiple Applications to Whole Lakes or Reservoirs:** If the goal of the aquatic plant management program is to use the lowest effective rate and to maintain a low herbicide concentration for sufficient time to ensure efficacy and enhanced selectivity, split or multiple application programs are appropriate. However, water analyses using ELISA (or other analyses) must be carried out to ensure that the water is treated at an initial application rate of 6 to 50 ppb. Continue split applications to maintain a sufficient concentration of fluridone for a minimum of 45 days or longer. As with single applications, to control Eurasian watermilfoil and curlyleaf pondweed and to provide greater plant selectivity, use an application rate lower in the rate range. For other weed species, contact an aquatic specialist to help determine when to choose lower application rate.

A single application at no more than 20 ppb may be made to lakes or reservoirs containing functional potable water intakes within ¼ mile of these functioning potable water intakes. Do not apply more than 150 ppb (sum of all applications) per annual growth cycle.

**Partial Lake or Reservoir Treatments:** If the chance of dilution of this product with untreated water is expected in partial lake or reservoir treatments, using split or multiple applications may extend the herbicide contact time with the target weeds. Use higher application rates and more frequent applications if the likelihood of untreated water diluting this product concentration in the treatment area is anticipated. Refer to the table in the next column for additional application instructions and for use rates. For additional application rate calculations, refer to the section How To Calculate Application Rates at the end of this label.

Partial Lake or Reservoir Treatment Site	Rates and Instructions
Treatment Areas Greater Than ¼ Mile from a Functioning Potable Water Intake	<b>Single applications:</b> Apply this product at 30 to 150 ppb. <b>Split or multiple applications:</b> Do not exceed 150 ppb (total of all applications) per annual growth cycle. If split applications are made, maintain a sufficient concentration in the target area for a period of 45 days or longer. Use the ELISA or other analyses to ensure that the desired concentration of fluridone is maintained over time.
Treatment Areas Within ¼ Mile of a Functioning Potable Water Intake	One may apply a concentration of greater than 20 ppb if the application is made at least ¼ mile or more from the functioning potable water intake. Application rates of less than 20 ppb may be made with ¼ mile of the potable water intake but use ELISA or other methods to verify that the fluridone concentration do not exceed 150 ppb at the potable water intake.

### DIRECTIONS FOR APPLICATION – DRAINAGE CANALS AND IRRIGATION CANALS

For additional application rate calculations, refer to the section How To Calculate Application Rates at the end of this label.

Application Site	Rates and Instructions
Static Canals	1 – 2 quarts per treated acre
Moving Water Canals	Optimum performance will be achieved when water flow is restricted or reduced. For slowly moving bodies of water, apply using techniques that maintain the fluridone concentration at 15 - 40 ppb for at least 45 days. Use split or multiple broadcast applications (or metering methods) to ensure a uniform concentration of fluridone. Use the ELISA or other analyses to ensure that the desired concentration of fluridone is maintained over time.
Static or Moving Water Canals Containing a Functioning Potable Water Intake	One may apply a concentration of greater than 20 ppb of this product at least ¼ mile or greater from the functioning potable water intake. Application rates of less than 20 ppb may be made with ¼ mile of the potable water intake but use ELISA or other methods to verify that the fluridone concentration do not exceed 150 ppb at the potable water intake.

### HOW TO CALCULATE APPLICATION RATES

**PONDS, LAKES AND RESERVOIRS:** Use the calculation below to determine the amount in fluid ounces of this product to be applied per acre to provide the desired ppb concentration of fluridone in the treated water:

$$\text{Fluid Ounces of this product required per treated acre} = (\text{Average water depth of treatment site in feet}) \times (\text{desired ppb concentration of fluridone}) \times 0.0027 \times 32$$

As an example, the calculation to determine the number of fluid ounces of this product needed to treat one acre for a herbicide concentration of 45 ppb fluridone at a site where the average water depth is 3 feet is shown as follows:

$$3 \times 45 \times 0.0027 \times 32 = 11.7 \text{ fl. oz. per treated acre}$$

Note: Fluid ounces can be converted to quarts by dividing the number of fluid ounces by 32.

$$\text{For example, } 11.7 \text{ fl. oz.} \div 32 = 0.37 \text{ quarts.}$$

Make sure that the calculated rate does not exceed the maximum allowable rate in pints (or quarts) per treated acre for the water depth listed in the application rate tables for the sites to be treated.

**MOVING WATER DRAINAGE AND IRRIGATION CANALS:** Calculate the amount of this product in quarts required for the proposed application through a metering system to provide the desired ppb concentration of fluridone in the treated water as follows:

1. Determine the Cubic Feet per Second as follows: CFS (cubic feet per second) = Average flow rate (feet per second) x average canal width (ft.) x average canal depth (ft.) x 0.9
2. Calculate the Water Movement in Acre-Feet per Day: Water movement in acre-feet per day = CFS x 1.98
3. Amount of this product required: Acre-feet per day x desired ppb x 0.0027 = Quarts of this product required per day

## 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 on skin or clothing:</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15-20 minutes.</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>• Immediately call a poison control center or doctor 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>
<b>If inhaled:</b>	<ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>

HOT LINE NUMBER: Have the product container or label with you when calling a poison control center or doctor, or going for treatment.  
IN CASE OF EMERGENCY call 1-800-654-6911

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Harmful if swallowed, absorbed through skin, or if inhaled. Causes moderate eye irritation. Avoid breathing of spray mist. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

### ENVIRONMENTAL HAZARDS

Do not apply to water except as specified on the label. Follow use directions carefully so as to minimize adverse effects on nontarget organisms. Do not contaminate water when disposing of equipment washwaters. Trees, turf, and shrubs growing in water treated with this product may occasionally develop chlorosis. Do not apply in tidewater/brackish water. Lowest rates should be used in shallow areas where the water depth is considerably less than the average depth of the entire treatment site, for example, shallow shoreline areas.

## STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store in original container only. Do not store near feed or foodstuffs. In case of leak or spill, use absorbent materials to contain liquids and dispose as waste.

**PESTICIDE DISPOSAL:** Wastes resulting from use of this product may be used according to label directions or disposed of at an approved waste disposal facility.

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. 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 ¼ 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.

## CONDITIONS OF SALE – LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES

The directions on this label are believed to be reliable and must be followed carefully. Insufficient control of pests and/or injury to the crop to which the product is applied may result from the occurrence of extraordinary or unusual weather conditions, the failure to follow the label directions, all of which are beyond the control of Applied Biochemists or seller. In addition, failure to follow label directions may cause injury to crops, animals, man or the environment. Applied Biochemists warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use, subject to the factors noted above which are beyond the control of Applied Biochemists. Except as warranted by this label, Applied Biochemists makes no other warranties or representations of any kind, express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose. To the extent allowed by applicable law, the exclusive remedy against Applied Biochemists for any cause of action relating to the handling or use of this product is a claim of damage, and in no event shall damages or any other recovery of any kind against Applied Biochemists exceed the price of the product which causes the alleged loss, damage, injury, or other claim. To the extent allowed by applicable law, Applied Biochemists shall not be liable and any and all claims against Applied Biochemists are waived, for special, indirect, incidental, or consequential damages or expense of any nature, including, but not limited to, loss of profits or income, whether or not based on the negligence of Applied Biochemists, breach of warranty, strict liability in tort, or any other cause of action. Applied Biochemists and the seller offer this product, and the buyer and users accept it, subject to the foregoing conditions of sale and limitations of warranty, liability and remedies.

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