Specimen Label

Herbicide

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

Active Ingredient:

fluridone: 1-methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-4(1*H*)-pyridinone	41.7%
Inert Ingredients	58.3%
Total	100.0%

Contains 4 pounds active ingredient per gallon.

EPA Registration No. 67690-4
EPA Est. 37429-GA-01
FPL 052102

Precautionary Statements

Hazards to Humans and Domestic Animals

Keep Out of Reach of Children

CAUTION PRECAUCION

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

Harmful If Swallowed, Absorbed Through Skin, Or If Inhaled

Avoid breathing of spray mist or contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

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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 poison control center or doctor for treatment advice.
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 swallowed	• Call a poison control center or doctor for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
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.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment	

Environmental Hazards

Follow use directions carefully so as to minimize adverse effects on nontarget organisms. In order to avoid impact on threatened or endangered aquatic plant or animal species, users must consult their State Fish and Game Agency or the U.S. Fish and Wildlife Service before making applications.

Do not contaminate water when disposing of equipment washwaters. Trees and shrubs growing in water treated with Sonar A.S. herbicide 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.

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.

Sonar® A.S. Herbicide

Shake well before using.

Storage and Disposal

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

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: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

General Information

Sonar A.S. herbicide is a selective systemic aquatic herbicide for management of aquatic vegetation in fresh water ponds, lakes, reservoirs, drainage canals and irrigation canals. Sonar A.S. is absorbed from water by plant shoots and from hydrosoil by the roots of aquatic vascular plants. It is important to maintain the recommended concentration of Sonar A.S. in contact with the target plants for a minimum of 45 days. Rapid water movement or any condition which results in rapid dilution of Sonar A.S. in treated water will reduce its effectiveness. In susceptible plants, Sonar A.S. inhibits the formation of carotene. In the absence of carotene, chlorophyll is rapidly degraded by sunlight. Herbicidal symptoms of Sonar A.S. appear in seven to ten days and appear as white (chlorotic) or pink growing points. Under optimum conditions, 30 to 90 days are required before the desired level of aquatic plant management is achieved with Sonar A.S. Species susceptibility to Sonar A.S. may vary depending on time of year, stage of growth, and water movement. For best results, apply Sonar A.S. prior to initiation of weed growth or when weeds begin active growth.

Application to mature target plants may require higher application rates and may take longer to control.

Sonar A.S. is not corrosive to application equipment.

The label provides recommendations on the use of a chemical analysis for the active ingredient. SePRO Corporation recommends the use of an Enzyme-Linked Immunoassay (ELISA Test) for the determination of the active ingredient concentration in the water. Contact SePRO Corporation for the utilization of this test, known as FasTEST, for the incorporation of this analysis in your treatment program. Other proven chemical analysis for the active ingredient may also be used. The chemical analysis, FasTEST, is referenced in this label as the preferred method for the rapid determination of the concentration of the active ingredient in the water.

Application rates are provided in ounces or quarts of Sonar A.S. to achieve a desired concentration of the active ingredient in parts per billion (ppb). The maximum application rate or sum of all application rates is 90 ppb in ponds and 150 ppb in lakes and reservoirs per annual growth cycle. This maximum concentration is the amount of product calculated as the target application rate, NOT determined by testing the residues of the active ingredient in the treated water.

General Use Precautions

- **Obtain Required Permits:** Consult with appropriate state or local water authorities before applying this product. Permits may be required by state or local public agencies.
- **Chemigation:** Do not apply Sonar A.S. through any type of irrigation system.
- **Hydroponic Farming:** Do not use Sonar A.S. treated water for hydroponic farming.
- **Greenhouse and Nursery Plants:** Do not use Sonar A.S. treated water for irrigating greenhouse or nursery plants. Use of an approved assay should confirm that residues are <1 ppb.
- **WATER USE RESTRICTIONS FOLLOWING APPLICATIONS WITH SONAR A.S. (DAYS)**

Application Rate	Drinking†	Fishing	Swimming	Livestock/Pet Consumption	Irrigation††
Maximum Rate (150 ppb) or less	0	0	0	0	See irrigation instructions below

† Note below, under Potable Water Intakes, the information for application of Sonar A.S. within 1/4 mile (1320 feet) of a functioning potable water intake.

†† Note below, under Irrigation, specific time frames or fluridone residues that provide the widest safety margin for irrigating with fluridone treated water.

- **Potable Water Intakes:** In lakes and reservoirs or other sources of potable water, DO NOT APPLY Sonar A.S. at application rates greater than 20 ppb within one-fourth mile (1320 feet) of any functioning potable water intake. At application rates of 6-20 ppb, Sonar A.S. 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 intakes.**

- **Irrigation:** Irrigation from a Sonar A.S. treated area may result in injury to the irrigated vegetation. SePRO Corporation recommends following the precautions and informing those who irrigate from areas treated with Sonar A.S. of the irrigation time frames or water assay requirements presented in the table below. These time frames and assay recommendations are suggestions which should be followed to reduce the potential for injury to vegetation irrigated with water treated with Sonar A.S. Greater potential for crop injury occurs where Sonar A.S. treated water is applied to crops grown on low organic and sandy soils.

	Days After Application		
Application Site	**Established Tree Crops**	**Established Row Crops Turf/Plants**	**Newly Seeded Crops/Seedbeds 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

†For purposes of Sonar A.S. labeling, a pond is defined as a body of water 10 acres or less in size. A lake or reservoir is greater than 10 acres.

††In lakes and reservoirs where one-half or greater of the body of water is treated, use the pond and static canal irrigation precautions.

Where the use of Sonar A.S. treated water is desired for irrigating crops prior to the time frames established above, the use of FasTEST assay is recommended to measure the concentration in the treated water. Where FasTEST has determined that the concentrations are less than 10 parts per billion, there are no irrigation precautions for irrigating established tree crops, established row crops or turf. For tobacco, tomatoes, peppers or other plants within the Solanaceae Family and newly seeded crops or newly seeded grasses such as overseeded golf course greens, do not use Sonar A.S. treated water if measured fluridone concentrations are greater than 5 ppb. Furthermore, when rotating crops, do not plant members of the Solanceae family in land that has been previously irrigated with fluridone concentrations in excess of 5 ppb. It is recommended that an aquatic specialist be consulted prior to commencing irrigation of these sites.

Plant Control Information

Sonar A.S. selectivity is dependent upon dosage, time of year, stage of growth, method of application and water movement. The following categories, controlled, partially controlled, and not controlled are provided to describe expected efficacy under ideal treatment conditions using higher to maximum label rates. Use of lower rates will increase selectivity of some species listed as controlled or partially controlled. Additional aquatic plants may be controlled, partially controlled, or tolerant to Sonar A.S. Consult an aquatic specialist prior to application of Sonar A.S. to determine a plant's susceptibility to Sonar A.S.

Vascular Aquatic Plants Controlled by Sonar A.S.

Floating Plants:
common duckweed (*Lemna minor*)

Emersed Plants:
spatterdock (*Nuphar luteum*)
water-lily (*Nymphaea* spp.)

Submersed Plants:
bladderwort (*Utricularia* spp.)
common coontail (*Ceratophyllum demersum*)
common elodea (*Elodea canadensis*)
egeria, Brazilian elodea (*Egeria densa*)
fanwort, cabomba (*Cabomba caroliniana*)
hydrilla (*Hydrilla verticillata*)
naiad (*Najas* spp.)
pondweed (*Potamogeton* spp., except Illinois pondweed)
watermilfoil (*Myriophyllum* spp., except variable-leaf milfoil)

Shoreline Grasses:
paragrass (*Urochloa mutica*)

Vascular Aquatic Plants Partially Controlled by Sonar A.S.

Floating Plants:
common watermeal (Wolffia columbiana)†

Emersed Plants:
alligatorweed (*Alternanthera philoxeroides*)
American lotus (*Nelumbo lutea*)
cattail (*Typha* spp.)
creeping waterprimrose (*Ludwigia peploides*)
parrotfeather (*Myriophyllum aquaticum*)
smartweed (*Polygonum* spp.)
spikerush (*Eleocharis* spp.)
waterpurslane (*Ludwigia palustris*)
watershield (*Brasenia schreberi*)

Submersed Plants:
Illinois pondweed (*Potamogeton illinoensis*)
limnophila (*Limnophila sessiliflora*)
tapegrass, American eelgrass (*Vallisneria americana*)
watermilfoil-variable-leaf milfoil (*Myriophyllum heterophyllum*)

Shoreline Grasses:
barnyardgrass (*Echinochloa crusgalli*)
giant cutgrass (*Zizaniopsis miliacea*)
reed canarygrass (*Philaris arundinaceae*)
southern watergrass (*Hydrochloa caroliniensis*)
torpedograss (*Panicum repens*)
†Partial control only with Sonar A.S. applied at the maximum labeled rate.

Vascular Aquatic Plants <u>Not Controlled</u> by Sonar A.S.

Floating Plants:
waterlettuce (*Pistia stratiotes*)

Emersed Plants:
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*)

Shoreline Grasses:
maidencane (*Panicum hemitomon*)

Note: algae (chara, nitella, and filamentous species are not controlled by Sonar A.S.)

Mixing and Application Directions

The aquatic plants present in the treatment site should be identified prior to application to determine their susceptibility to Sonar A.S. It is important to determine the area (acres) to be treated and the average depth in order to select the proper application rate. Do not exceed the maximum labeled rate for a given treatment site per annual growth cycle.

Shake Sonar A.S. well before using. Add the recommended amount of Sonar A.S. to water in the spray tank during the filling operation. Agitate while filling and during spraying. Surface or subsurface application of the spray can be made with conventional spray equipment. Sonar A.S. can also be applied near the surface of the hydrosoil using weighted trailing hoses. A spray volume of 5 to 100 gallons per acre may be used. Sonar A.S. may also be diluted with water and the concentrated mix metered into the pumping system.

Tank Mix Recommendations

Sonar A.S. may be tank mixed with other aquatic herbicides and algaecides to enhance efficacy and plant selectivity. Refer to the companion herbicide or algaecide label for use directions, precautions, and restrictions on use.

Application to Ponds

Sonar A.S. may be applied to the entire surface area of a pond. For single applications, rates may be selected to provide 45 to 90 ppb to the treated water. Use the higher rate within the rate range where there is a dense weed mass, when treating more difficult to control species, and for ponds less than 5 acres in size with an average depth less than 4 feet. Application rates necessary to obtain these concentrations are shown in the following table. For additional application rate calculations, refer to page 6—Application Rate Calculation-Ponds, Lakes and Reservoirs. Split or multiple applications are recommended where dilution of treated water is anticipated; however, the sum of all applications must not exceed a total of 90 ppb per annual growth cycle.

<u>Average Water Depth of Treatment Site (feet)</u>	<u>Quarts of Sonar A.S. per Treated Surface Acre to Achieve:</u>			<u>Fluid Ounces of Sonar A.S. Per Treated Surface Acre to Achieve:</u>		
	45 ppb	to	90 ppb	45 ppb	to	90 ppb
1	0.12		0.24	3.8		7.7
2	0.24		0.49	7.7		15.7
3	0.37		0.73	11.8		23.4
4	0.49		0.98	15.7		31.4
5	0.61		1.22	19.5		39.0
6	0.73		1.46	23.4		46.7
7	0.85		1.70	27.2		54.4
8	0.98		1.95	31.4		62.4
9	1.10		2.19	35.2		70.1
10	1.22		2.44	39.0		78.1

Application to Lakes and Reservoirs

The following treatments are recommended for treating both whole lakes or reservoirs and partial areas of lakes or reservoirs (bays, etc.). For best results in treating partial lakes and reservoirs, Sonar A.S. treatment areas should be a minimum of 5 acres in size. Treatment of areas smaller than 5 acres or treatment of narrow strips such as boat lanes or shorelines may not produce satisfactory results due to dilution by untreated water. Rate ranges are provided as a guide to include a wide range of environmental factors, such as, target species, plant susceptibility, selectivity and other aquatic plant management objectives. Application rates and methods should be selected to meet the specific lake/reservoir aquatic plant management goals.

A. Whole Lake or Reservoir Treatments (Limited or No Water Discharge)

1. Single Application to Whole Lakes or Reservoirs

Where single applications to whole lakes or reservoirs are desired, apply Sonar A.S. at an application rate of 10 to 90 ppb. Application rates necessary to obtain these concentrations in treated water are shown in the following table. For additional rate calculations, refer to page 6—Application Rate Calculation-Ponds, Lakes, and Reservoirs. Choose an application rate to meet the aquatic plant management objective. **Where greater plant selectivity is desired such as when controlling Eurasian watermilfoil and curlyleaf pondweed, choose an application rate lower in the rate range.** For other plant species, SePRO recommends contacting an aquatic specialist in determining when to choose application rates lower in the rate range to meet specific plant management goals. Use the higher rate within the rate range where there is a dense weed mass or when treating more difficult to control plant species. Retreatments may be required to control more difficult to control species or in the event of a heavy rainfall event where dilution of the treatment concentration has occurred. In these cases, a second application or more may be required; however, the sum of all applications cannot exceed 150 ppb per annual growth cycle. Refer to the following Section (No. 2) Split or Multiple Applications for guidelines and maximum rate allowed.

Single Application of Sonar A.S.

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

2. Split or Multiple Applications to Whole Lakes or Reservoirs

To meet certain plant management objectives, split or multiple applications may be desired in making whole lake treatments. Split or multiple application programs are desirable when the objective is to use the minimum effective dose and, through the use of a water analysis, e.g. FasTEST, add additional Sonar A.S. to maintain this lower dose for the sufficient time to ensure efficacy and enhance selectivity. Water may be treated at an initial application of 6 to 50 ppb. Additional split applications should be conducted to maintain a sufficient concentration for a minimum of 45 days or longer. **In controlling Eurasian watermilfoil and curlyleaf pondweed and where greater plant selectivity is desired, choose an application rate lower in the rate range.** For other plant species, SePRO recommends contacting an aquatic specialist in determining when to choose application rates lower in the rate range to meet specific plant management goals. When utilizing split or multiple applications of Sonar A.S., the utilization of FasTEST is strongly recommended to determine the actual concentration in the water over time. For split or multiple applications, the sum of all applications must not exceed 150 ppb per annual growth cycle.

Note: In treating lakes or reservoirs that contain functioning potable water intakes and the application requires treating within 1/4 mile of a potable water intake, no single application can exceed 20 ppb. Additionally, the sum of all applications cannot exceed 150 ppb per annual growth cycle.

B. Partial Lake or Reservoir Treatments

Where dilution of Sonar A.S. with untreated water is anticipated, such as in partial lake or reservoir treatments, split or multiple applications may be used to extend the contact time to the target plants. The application rate and use frequency of Sonar A.S. in a partial lake is highly dependent upon the treatment area. Higher application rates may be required and frequency of applications will vary depending upon the potential of untreated water diluting the Sonar A.S. concentration in the treatment area. Use higher rates where greater dilution with untreated water is anticipated.

1. Treatment Areas Greater Than 1/4 Mile from a Functioning Potable Water Intake

For single applications, apply Sonar A.S. at application rates from 30 to150 ppb. Split or multiple applications may be made; however, the sum of all applications cannot exceed 150 ppb per annual growth cycle. Split applications should be conducted to maintain a sufficient concentration in the target area for a period of 45 days or longer. The use of FasTEST is recommended to maintain the desired concentration in the target area over time.

2. Treatment Areas Within 1/4 Mile of a Functioning Potable Water Intake

In treatment areas that are within 1/4 mile of a potable water intake, no single application can exceed 20 ppb. When utilizing split or multiple applications of Sonar A.S. for sites which contain a potable water intake, FasTEST is required to determine the actual concentration in the water. Additionally, the sum of all applications cannot exceed 150 ppb per annual growth cycle.

Application Rate Calculation - Ponds, Lakes and Reservoirs

The amount of Sonar A.S. to be applied to provide the desired ppb concentration of active ingredient in treated water may be calculated as follows:

Quarts of Sonar A.S. required per treated surface acre = Average water depth of treatment site (feet) **x** Desired ppb concentration of active ingredient **x** 0.0027

For example, the quarts per acre of Sonar A.S. required to provide a concentration of 25 ppb of active ingredient in water with an average depth of 5 feet is calculated as follows:

5 **x** 25 **x** 0.0027 = 0.33 quarts per treated surface acre

When measuring quantities of Sonar A.S., quarts may be converted to fluid ounces by multiplying quarts to be measured **x** 32. For example, 0.33 quarts **x** 32 = 10.5 fluid ounces.

Note: Calculated rates should not exceed the maximum allowable rate in quarts per treated surface acre for the water depth listed in the application rate table for the site to be treated.

Application to Drainage Canals and Irrigation Canals

Static Canals:

In static drainage and irrigation canals, Sonar A.S. should be applied at the rate of 1 to 2 quarts per treated surface acre.

Moving Water Canals:

The performance of Sonar A.S. will be enhanced by restricting or reducing water flow. In slow moving bodies of water use an application technique that maintains a concentration of 15-40 ppb in the target area for a minimum of 45 days. Sonar A.S. can be applied by split or multiple broadcast applications or by metering in the product to provide a uniform concentration of the herbicide based upon the flow pattern. The use of FasTEST is recommended to maintain the desired concentration in the target area over time.

Static or Moving Water Canals Containing a Functioning Potable Water Intake

In treating a static or moving water canal which contains a functioning potable water intake, applications of Sonar A.S. greater than 20 ppb must be made more than 1/4 mile from a functioning potable water intake.
Applications less than 20 ppb may be applied within 1/4 mile from a functioning potable water intake; however, if applications of Sonar A.S. are made within 1/4 mile of a functioning potable water intake, the FasTEST must utilized to demonstrate that concentrations do not exceed 150 ppb at the functioning potable water intake.

Application Rate Calculation – Moving Water Drainage and Irrigation Canals

The amount of Sonar A.S. to be applied through a metering system to provide the desired ppb concentration of active ingredient in treated water may be calculated as follows:

1. Average flow rate (feet per second) **x** average canal width (ft.) **x** average canal depth (ft.) **x** 0.9 = CFS (cubic feet per second).
2. CFS **x** 1.98 = acre feet per day (water movement)
3. Acre feet per day **x** desired ppb **x** 0.0027 = Quarts of Sonar A.S. required per day

Warranty Disclaimer

SePRO Corporation warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. SEPRO CORPORATION MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

Inherent Risks of Use

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of SePRO Corporation or the seller. All such risks shall be assumed by buyer.

Limitation of Remedies

The exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to, at SePRO Corporation's election, one of the following:

(1) Refund of purchase price paid by buyer or use for product bought, or
(2) Replacement of amount of product used.

SePRO Corporation shall not be liable for losses or damages resulting from handling or use of this product unless SePRO Corporation is promptly notified of such loss or damage in writing. In no case shall SePRO Corporation be liable for consequential or incidental damages or losses.

The terms of the Warranty Disclaimer above and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of SePRO Corporation or the seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.