

Lake Hood Aquatic Plant Survey and Control Methods

Prepared for:

Ted Stevens Anchorage International Airport

Environmental Compliance Section

State of Alaska Department of Transportation and Public Facilities

Prepared by:



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ABBREVIATIONS

ABI – AQUATIC BIOLOGISTS, INC.

AKEPIC – ALASKA EXOTIC PLANTS INFORMATION CLEARINGHOUSE

ANC – TED STEVENS ANCHORAGE INTERNATIONAL AIRPORT

DEC – DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DOT – DEPARTMENT OF TRANSPORTATION

EPA – ENVIRONMENTAL PROTECTION AGENCY

FIFRA – FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT

IMO – INTERNATIONAL MARITIME ORGANIZATION

PPLS – PESTICIDE PRODUCT LABEL SYSTEM

MSDS – MATERIAL SAFETY DATA SHEET

UAA – UNIVERSITY OF ALASKA ANCHORAGE

USDA – UNITED STATES DEPARTMENT OF AGRICULTURE

USFW – US FISH AND WILDLIFE SERVICE

1 Background Information

1.1 Location

Anchorage is located in south central Alaska at the head of Cook Inlet. The Ted Stevens Anchorage International Airport (ANC) is located in Anchorage on property overlooking Turnagain Arm. Lake Hood and Lake Spenard are located on the eastern portion of ANC.

1.2 History

Originally two separate water bodies, Lake Hood and Lake Spenard were joined together with a single channel in 1940. The amount of air traffic using the lakes increased through the 1950's with additional float plane parking and complex enlargement. In 1975, a slow taxi channel was dredged between the two lakes, with gull island separating the two channels (DOT, 2011).

1.3 Current Usage

The Ted Stevens Anchorage International Airport is home to the World's largest and most active seaplane base. Three waterlanes are currently operated on Lakes Hood and Spenard. During winter months, the complex is used by aircrafts with skis replacing the wheels or floats (DOT, 2011).

2 Problem Statement

Aquatic vegetation in a water body used for air traffic can be problematic for aircraft users and airport managers. An overgrowth of weeds can affect aircraft navigation on the lake and pose a potential safety hazard. To determine the most appropriate mitigation approach, a general understanding about the types of plants present in the lake is necessary.

2.1 Previous Study

The ANC Environmental Compliance Section contracted CH2MHILL to prepare an Aquatic Vegetation Management Plan in 2005 to determine the available options for reducing the amount of vegetation present in Lake Hood and Lake Spenard. A survey was conducted to determine the type of vegetation present in the lake. To mitigate negative effects from over growth of aquatic vegetation, reduction methods were investigated including physical, biological, and chemical approaches (CH2MHill, 2005). As a result of the study, a mechanical weed harvester was purchased by ANC to physically remove the vegetation during the summer months.

2.2 Current Study

The study conducted by CH2MHILL was completed in 2005. The method of physically removing the vegetation from the lakes is not as effective as the pilots operating on Lakes Hood and Spenard desire. A follow up study was requested to determine whether the vegetation in the lakes has changed over the last six years either by the introduction of new species or by the elimination of previously identified species. An investigation into the previously recommended control options was also requested to determine if any of the recommended methods are no longer feasible or if any new mitigation techniques have been introduced since the study was conducted. A specific species of concern is *Elodea*

nutallii (Nuttall's waterweed), an invasive plant that the US Fish and Wildlife Service has identified as an issue in the west Anchorage areas of Sand Lake and Delong Lake (Rich, 2011).

3 Approach

To gain an understanding about the aquatic vegetation currently present in and around Lakes Hood and Spenard, a vegetation survey was conducted through the months of July and August in 2011. Samples of aquatic vegetation were collected by RSE personnel from the weed harvester previously purchased for weed reduction and by using a rake from a motor boat to collect vegetation directly from the water. RSE field personnel walked around the perimeter of the lake to identify and collect terrestrial vegetation.

4 Field Survey, Sampling and Cataloging

Vegetation samples were collected from Lakes Hood and Spenard on July 7, July 14, July 20 and August 3. A map of the lakes depicting the locations sampled during each event is included in Appendix A. During the first sampling event, RSE field personnel accompanied the operator on the mechanical harvester while vegetation was collected from Lake Hood (Sample Area 1). During the second sampling event, the harvester collected plants from the north pothole of Lake Hood and the Taxiway (Sample Area 2) and RSE personnel collected samples from the harvester before the material was discarded. During the same sampling event, RSE personnel accompanied the operator on the mechanical harvester through Lake Spenard (Sample Area 3). During the third sampling event, RSE field personnel accompanied an ANC staff-member in a motor boat to the south pothole of Lake Spenard, the South Pothole of Lake Hood and along the taxiway and collected samples using a rake (Sample Area 4). All samples were returned to RSE's wetlab where they were photographed, pressed, and identified by a plant specialist.

5 Vegetation

The general categories of aquatic plants are Submerged Aquatic Species, Floating Aquatic Species, Floating Rooted Aquatic Species, and Emergent (both woody and herbaceous) (Kadlec & Knight, 1996). Although some plants have features that would allow them to be classified into more than one of these categories, there is usually a dominant feature that allows them to be most appropriately categorized into one area. Submerged plants have buoyant stems and leaves, but remain below the water surface. Some examples include water mosses and milfoils. Floating plants are categorized by stems and leaves with enough buoyancy to float on the surface of the water. Examples include Duckweed and bog mats. Floating rooted plants have similar features to floating plants, but their roots are anchored into the bottom of the lake; examples include pondweeds and water lilies. Emergent species are distinguishable because the majority of the above ground part of the plant is also above the water surface. Examples include Spikerushes, Bulrush and Cattails.

RSE field personnel surveyed the vegetation in and around Lakes Hood and Spenard. The aquatic vegetation observed in the lakes is all classified as Submerged Aquatic Species. A summary of the

aquatic species identified in the Lakes is included in Table 1. A summary of the terrestrial vegetation surrounding the Lakes is included in Table 2. Native plants were distinguished from Non-Native plants using the University of Alaska Anchorage’s (UAA) Alaska Exotic Plants Information Clearinghouse(AKEPIC, 2011) as well as the United States Department of Agriculture’s (USDA) Plants Database (USDA, 2011).

5.1 Aquatic Species Identified

RSE field personnel identified plants collected from Lake Hood and Lake Spenard in RSE’s wet lab. The plants were photographed and then pressed for documentation. Photographs of each species identified are included in Appendix B (Figure B-1 through Figure B-10). As shown in Table 1, all aquatic species identified by RSE field personnel are native to Alaska. No known invasive species were identified during the survey. *Elodea nutallii* was not observed in samples taken from Lake Hood or Lake Spenard during 2011.

Table 1. Aquatic vegetation identified by RSE experts from samples taken out of Lake Hood and Lake Spenard

Native Species	Status
<i>Potamogeton pectinatus</i> (Sago Pondweed)	Native
<i>Potamogeton richardsonii</i> (Clasping-leaf Pondweed)	Native
<i>Potamogeton zosteriformis</i> (Pondweed)	Native
<i>Myriophyllum farwellii</i> (Farwell’s milfoil)	Native
<i>Myriophyllum sibiricum</i> (Shortspike Watermilfoil)	Native
<i>Eleocharis acicularis</i> (needle spikerush)	Native
<i>Eleocharis parvula</i> (dwarf spikerush)	Native
<i>Sparganium angustifolium</i> , (narrowleaf bur-reed)	Native
<i>Warnstorfia fluitans</i> (water hook moss)	Native

5.2 Terrestrial Species Identified

A survey of the terrestrial plants surrounding Lakes Hood and Spenard was done by RSE personnel. Vegetation was identified ranging from the upper littoral zone to three feet away from the lake surface. Photographs were taken around both lakes to document the vegetation present. The identified species are summarized in Table 2.

Table 2. Terrestrial vegetation identified by RSE experts during a field inspection around the perimeter of Lake Hood and Lake Spenard

Native Species	Invasive Species
<i>Achillea millefolium</i> (Common Yarrow)	<i>Linaria vulgaris</i> (Butter and Eggs)
<i>Calamagrostis canadensis</i> (Blue-Joint Reedgrass)	<i>Hieraceium caespitosum</i> (Meadow Hawkweed)
<i>Carex rhynchophysa</i> (Northwest Territory Sedge)	<i>Matricaria matricarioides</i> (Pineapple Mayweed)
<i>Equisetum arvense</i> (Field Horsetail)	<i>Plantago major</i> (Common Plantain)
<i>Geum macrophyllum</i> (Large-Leaf Avens)	<i>Stellaria media</i> (Common Chickweed)
<i>Polygonum pennsylvanicum</i> (Pennsylvania Smartweed)	

5.3 Variation from 2006 Survey

There are differences in the vegetation observed between this study and the study conducted in 2005. The 2005 Aquatic Vegetation Management Plan reported floating plants in Lake Hood, specifically water lilies (*Nymphaea* spp.), spatterdock (*Nuphar lutea* ssp.), water shield (*Brasenia* spp.), and yellow pond lily (*Nuphar* spp.). These species were not observed during this study. During the sampling events conducted by RSE personnel, all of the aquatic vegetation observed was in the category of submerged aquatic species.

6 Aquatic Control Methods Review

Physical, biological and chemical methods for vegetation reduction in the lakes were thoroughly investigated by CH2MHILL. For an in-depth description about each procedure, including a cost analysis, as well as pros and cons of each method, refer to the 2005 Aquatic Vegetation Management Plan.

6.1 Physical

The physical methods investigated in the 2005 Aquatic Vegetation Management Plan included Hand Pulling or Cutting, Bottom Barriers, Water-Level Drawdown, Mechanical Harvesting, Rotovation and Diver Dredging. Based on CH2MHILL’s report, ANC purchased a mechanical harvester that is currently used during the summer months to remove vegetation from Lakes Hood and Spenard.

6.2 Biological

The biological methods investigated in the 2005 Aquatic Vegetation Management Plan included introducing Triploid Grass Carp or Insects. Neither one of these methods was implemented in Lakes Hood or Spenard.

6.3 Chemical

The use of pesticides is controlled by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). This act requires that all pesticides must be registered and licensed by the EPA before use in the United States. The following herbicides were investigated in depth by CH2MHILL in the 2005 Aquatic Vegetation Management Plan. Products available that contain each specified chemical are summarized in Table 3, along with the EPA’s registration numbers for that product. The registration numbers were confirmed on the EPA’s Pesticide Product Label System (PPLS) (EPA, 2011) which provides registration

sheets for each product. These registration sheets contain information about the chemical makeup of the product, safety information, effectiveness on various plants and chemical concentrations. Some of the products listed in Table 3 are further investigated in the following section and the costs are compared to the product costs from 2005. The most recent EPA registration sheets for this smaller group of products is included in Appendix D.

Table 3. Chemicals with associated products and their EPA registration numbers

Chemical	Product	EPA Registration Number
2,4-D	2, 4-D Amine 4	1381-103
	Aquacide (EPA registration reports this product as 2, 4-D: CHSMHILL reports this product as Diquat)	5080-2
	Navigate	228-378-8959
Diquat	Weedtrine-D Aquatic Herbicide	8959-9
	Reward Landscape and Aquatic Herbicide	100-1091
Endothall	Hydrothol 191 Aquatic Algicide and Herbicide	70506-175
	Hydrothol 191 Granular Aquatic Algicide and Herbicide	70506-174
	Aquathol K	70506-176
Fluridone	Fluridone SC	67690-30
	WhiteCap SC	61842-11
	Sonar SRP	67690-3
	Sonar A.S.	67690-4
	Sonar* X	67690-12
	Sonar* Extra	67690-48
	Sonar One	67690-45
Glyphosate	AquaMaster Herbicide	524-343
Triclopyr	Renovate Granular	67690-42
	Renovate	62719-187
Aquashade	Aquashade	33068-1

6.3.1 Cost Comparison

The 2005 Aquatic Vegetation Management Plan calculated costs per treatment for different possible chemical mitigation methods. The cost for some of the chemicals has changed since the study was conducted. Table C-1 (Appendix C) compares the costs presented in the 2005 Aquatic Vegetation Management Plan to the current costs determined using 2011 chemical costs. The costs in the 2005 report were determined separately for different chemicals based on the area to be treated. The costs for treating the following four areas in the lake were investigated: the whole lake, within the 10 foot littoral zone, within the 5 foot littoral zone, and the individual slips. The calculated costs assumed labor costs to be \$100 per hour and the following time requirements per treatment:

- Whole Lake: 16 hours
- 10 foot littoral zone: 8 hours
- 5 foot littoral zone: 4 hours
- Individual slips: 0.25 hours application, 0.5 hours raking, twice per year

To keep consistent with the assumptions made during the 2005 report, Table C-1 uses the same assumptions for labor costs and time when calculating 2011 treatment costs. For an in depth description about each chemical, the concentration guidelines and the area of lake selected for treatment, refer to Chapter 7 in the 2005 Aquatic Vegetation Management Plan. The following paragraphs summarize, for each chemical, the product information provided in the 2005 study and the assumptions made for the 2011 cost comparison. Table C-1 provides a complete summary of the cost comparison. All of the chemicals presented in the 2005 report are considered for 2011 costs. However, some of the chemicals are hazardous and shipping them to Alaska may not be feasible. RSE did not calculate the 5 year present worth costs in this report.

2, 4-D (e.g. Navigate)

Navigate is sold in 50 pound bags. Treating the 10 foot littoral zone would require 402 bags, the 5 foot littoral zone would require 86 bags, and individual slips would require 2.5 lbs out of a 40 pound bag. In 2005, the cost for a 50 pound bag was \$165. In 2011, the cost for a 50 pound bag is \$191 (ABI, 2011). The label on the outside of a bag of Navigate displays the EPA number, as reported in Table 3; however, the EPA PPLS website does not report a pesticide registration sheet for the product (EPA, 2011). Navigate does not appear on the DEC website as an approved chemical for use in the State of Alaska (ADEC, 2011).

Fluridone

Sonar A.S. is a liquid product sold by the quart. The 2005 report states that treating the whole lake would require 53 quarts. Based on the 2005 cost for treating the 10 foot littoral zone and after subtracting the labor costs, the 10 foot littoral zone would require just over 54 quarts of Sonar A.S. The cost in 2005 was \$550 per quart. In 2011, the cost is \$685 (SePRO a. , 2011).

Sonar SRP (slow release pellets) is sold in 40 pound bags. The 2005 report states that treating the whole lake would require 27 bags. The 2005 cost, including labor, for treating the 10 foot littoral zone was used to determine that just under 41 bags would be necessary. Why more bags would be necessary to treat just the 10 foot littoral zone rather than the whole lake is unclear in the 2005 report. The numbers given in the report were used to calculate new estimates for 2011 costs. In 2005, the price for a 40 pound bag was \$931. In 2011, the cost for a 40 pound bag of Sonar SRP is \$1126.40 (ABI, 2011). The price estimate is from Aquatic Biologists, Inc (ABI) however they do not sell the product over the internet; they require and over the phone order.

Endothall

According to the 2005 report, treating the whole lake with Hydrothol 191 would require 3,390 gallons. Hydrothol is most commonly available in granular form; however, liquid forms are also available. According to Aquatic Biologists, Inc., the liquid form is harsh on the environment and commonly requires special circumstances to justify usage. To determine the amount of Hydrothol 191 granular that would be necessary to treat the lake requires information about the shoreline and the depth, which was outside of the scope of work. The 2011 cost for 2.5 gallons of Liquid Hydrothol 191 is around \$190.

The 2011 cost for the granular form is \$220 for a 40 pound pail (ABI, 2011). Due to limited information, a direct comparison between 2005 costs and 2011 costs is not possible.

According to the 2005 report, treating the whole lake with Aquathol K would require 2,392 gallons. As with Hydrothol 191, Aquathol K is also more common in granular form. Since the liquid form of Aquathol comes in 2.5 gallon containers, 957 containers would be needed for the lake. The 2011 cost for a 10 pound bucket is \$261.20; 25 pound buckets are also available, but not for ordering online (ABI, 2011). The cost for 2.5 gallons of liquid is \$275.00. The 2005 cost for liquid was determined using the per treatment cost, subtracting labor costs, and dividing by the 957 units. The provided costs per treatment were used along with the 2005 unit costs to determine the number of units necessary for the 10 foot and 5 foot littoral zone.

Hydrothol 191 and Aquathol K both do not appear on the DEC website as approved chemicals for use in the State of Alaska (ADEC, 2011).

Diquat

According to the 2005 report, using Reward to treat the 10 foot littoral zone would require 268 gallons. Since Reward is sold in 2.5 gallon containers, a little over 107 containers would be needed. Treating the 5 foot littoral zone would require 57 gallons, which comes out to about 23 containers. Using these values, the unit cost in 2005 was about \$351.00 per 2.5 gallons. The 2011 cost is \$465.00 per 2.5 gallons. Reward does not appear on the DEC website as an approved chemical for use in the state of Alaska (ADEC, 2011).

6.3.1 Transportation

Transporting chemicals to Alaska can be challenging. Products shipped by ground transportation are regulated by the DOT. Products shipped by a vessel are regulated by the International Maritime Organization (IMO). A chemical may be considered hazardous by one agency and not another, which may influence how a chemical is transported. Transport Canada may regulate hazardous products being driven through Canada with stricter regulations than the USDOT. Some manufactures may not ship all products to Alaska. Section 14 of the Material Safety Data Sheet (MSDS) for a chemical usually states which agencies consider the chemical to be hazardous. (SePRO b. , 2011) The MSDS for each chemical investigated is included in Appendix E.

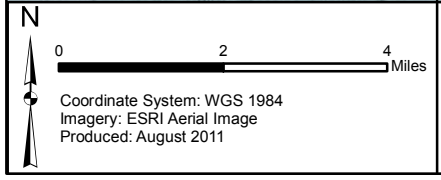
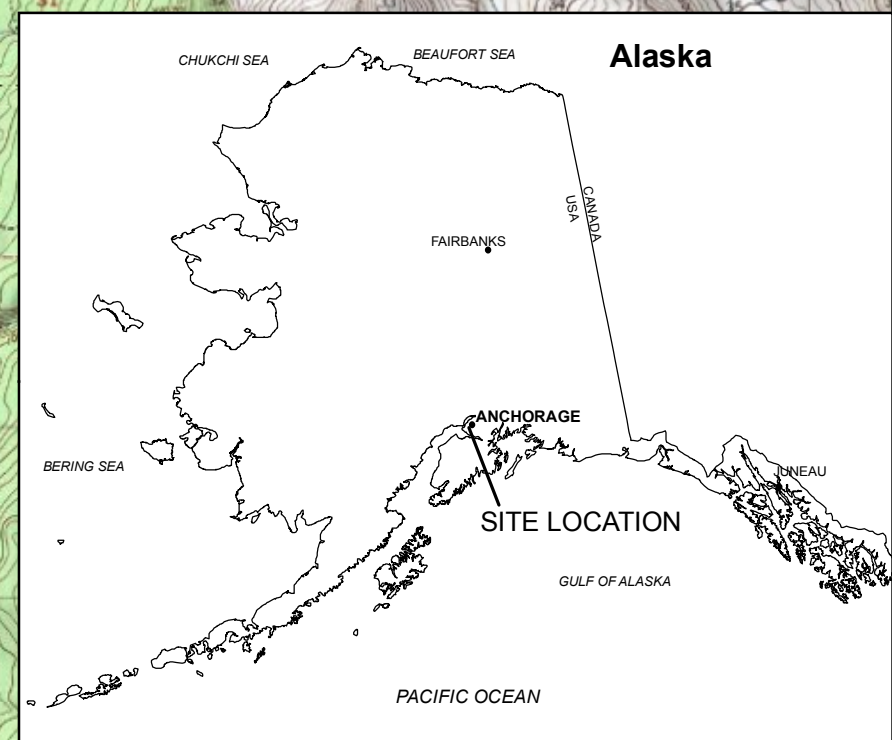
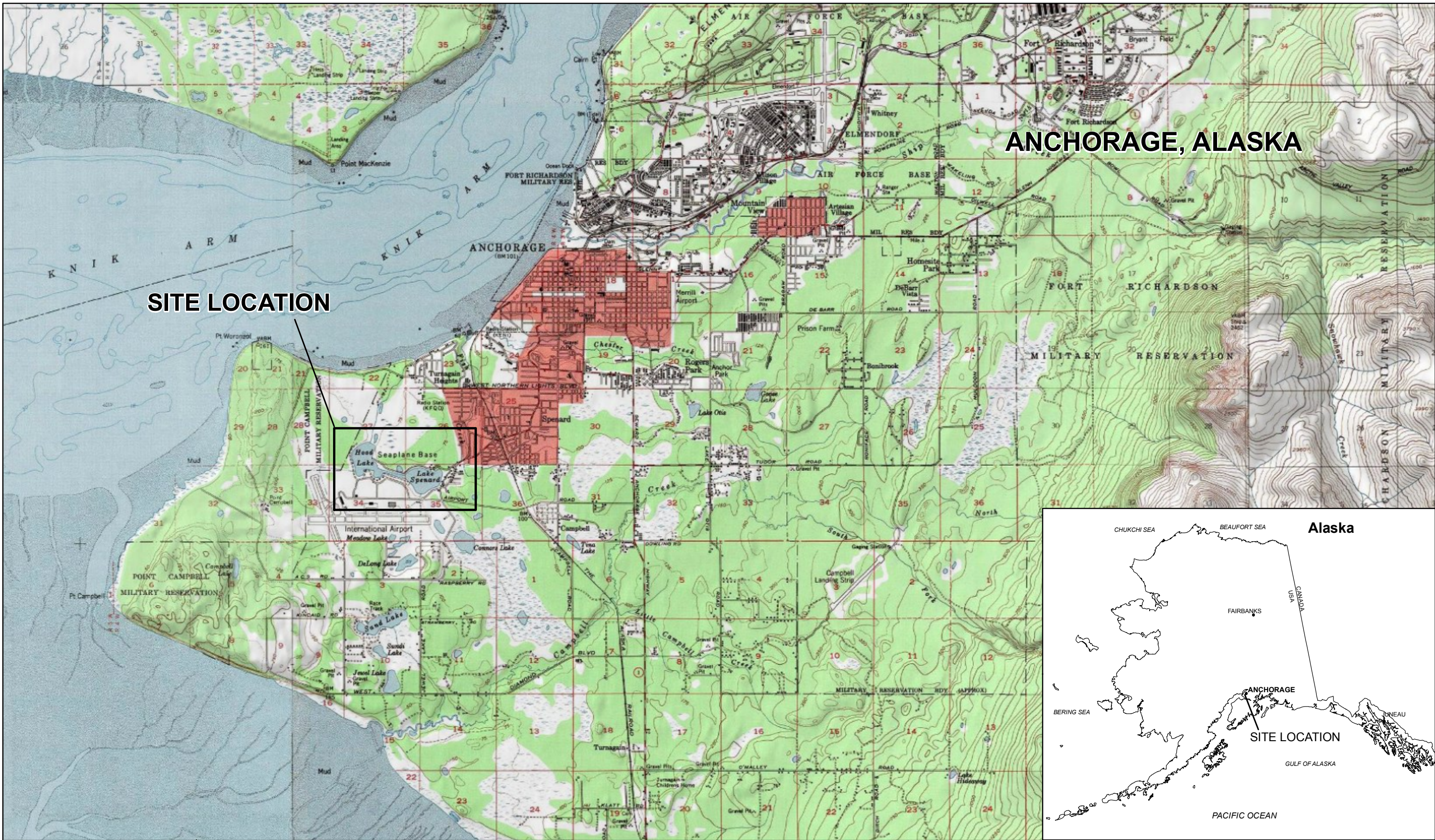
6.3.2 Possible Effects on Aircraft Floats

Aircraft floats are crafted of three types of materials: composite fiberglass, aluminum, and rubber. Composite fiberglass is designed to be non-corrosive. Matt Sigfrinius with Aerocet, a manufacturer of composite aircraft floats, reported that there are no known chemicals that will damage composite floats (Sigfrinius, 2011). Mike Aune with Wipaire, Inc, a manufacturer of aluminum aircraft floats, reported no issues from pesticides or herbicides affecting aluminum floats (Aune, 2011). When questioned, manufactures commonly stated that no specific studies had been conducted on the effect of chemicals on their floats, only tests to comply with FAA regulations.

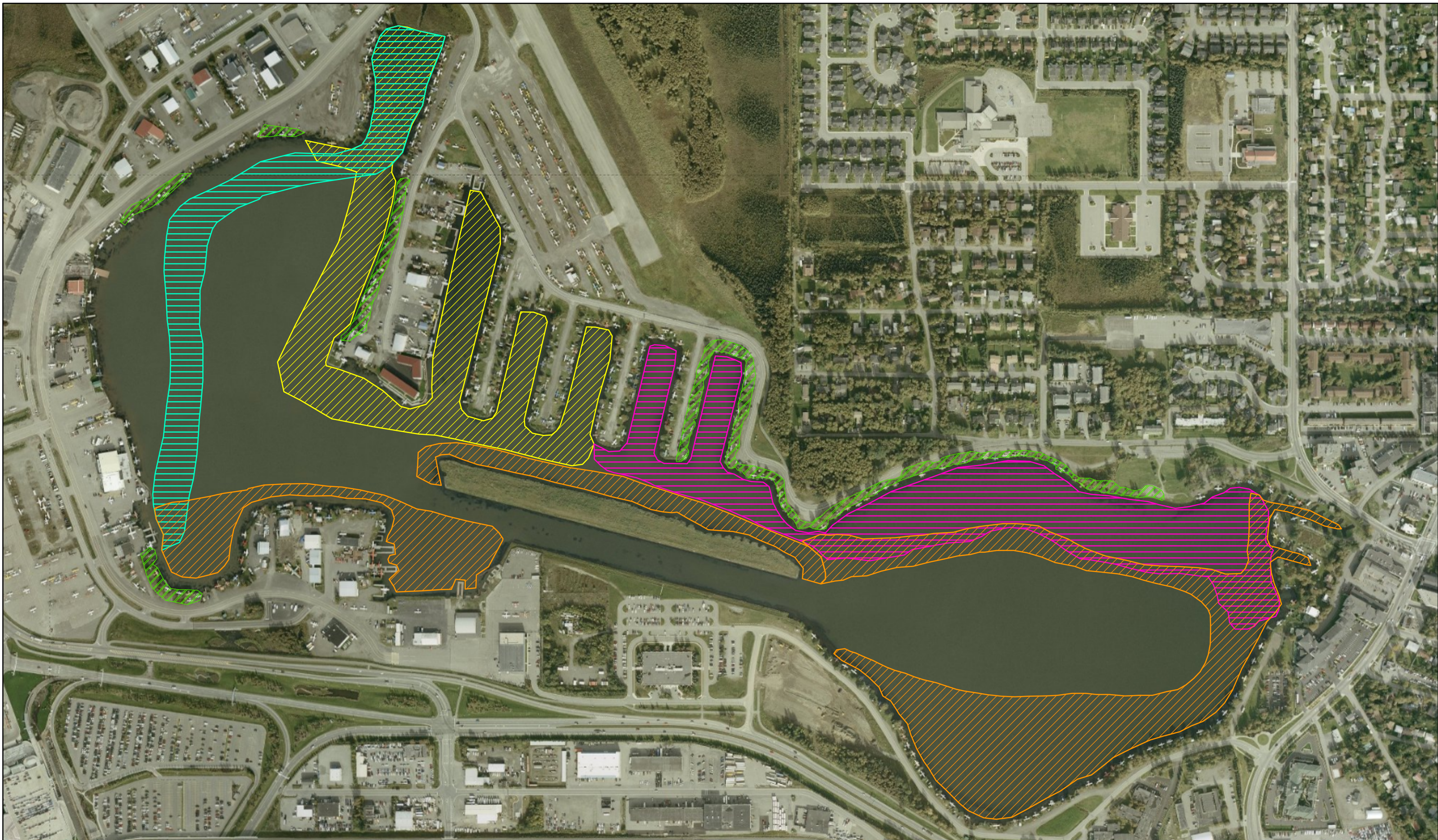
7 References

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Appendix A. Sample Location Map



Lake Hood Aquatic Plant Survey
Figure A-1: Vicinity Map



N
 0 500 1,000 Feet
 Coordinate System: WGS 1984
 Imagery: ESRI Aerial Image
 Produced: August 2011

Lake Hood Aquatic Plant Survey
Figure A-2: Sampling Locations

- Legend**
-  Aquatic Sample 1
 -  Aquatic Sample 2
 -  Aquatic Sample 4
 -  Aquatic Sample 3
 -  Terrestrial Sample


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Appendix B. Vegetation Photos

Figures B-1 through B-12: Aquatic Vegetation

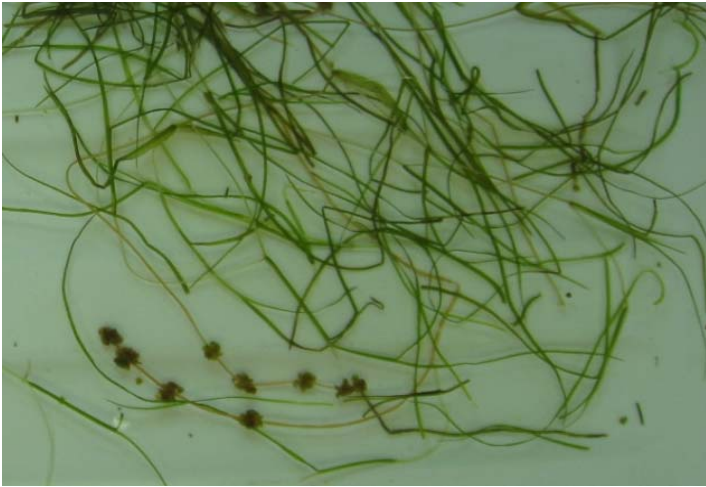


Figure B-1. *Potamogeton pectinatus* (Sago Pondweed), Native



Figure B-3 *Potamogeton richardsonii* (Clasping-leaf Pondweed), Native



Figure B-2 *Sparganium angustifolium* (narrowleaf bur-reed), Native



Figure B-4. *Potamogeton zosteriformis* (flatstem pondweed), Native

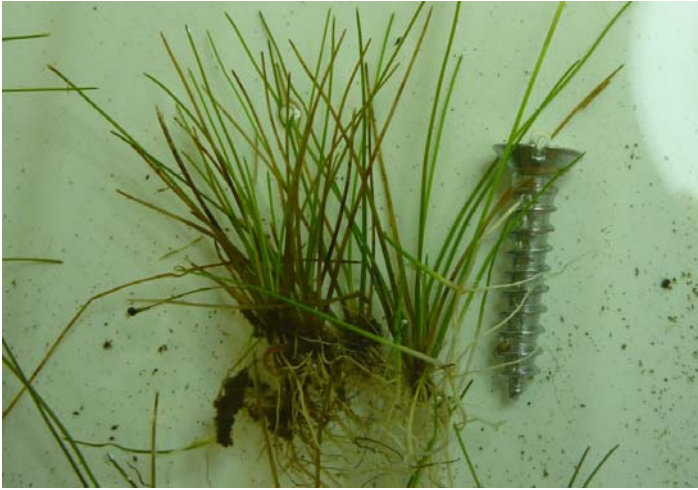


Figure B-5. *Eleocharis acicularis* (needle spikerush), Native



Figure B-7. *Myriophyllum sibiricum* (Shortspike Watermilfoil), Native

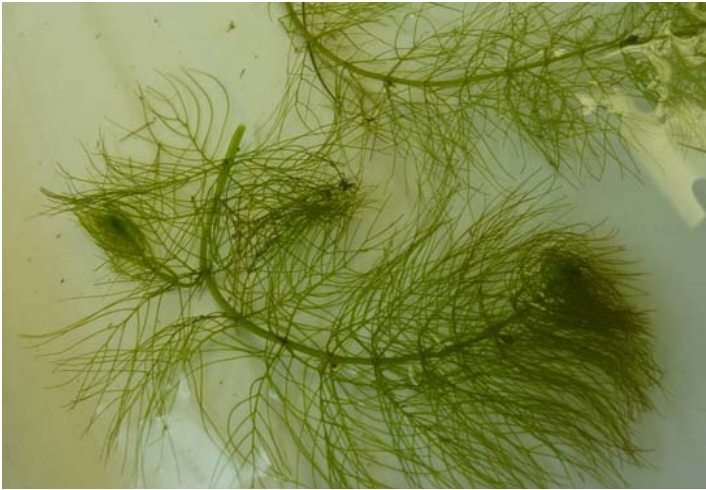


Figure B-6. *Myriophyllum farwellii* (Farwell's milfoil), Native

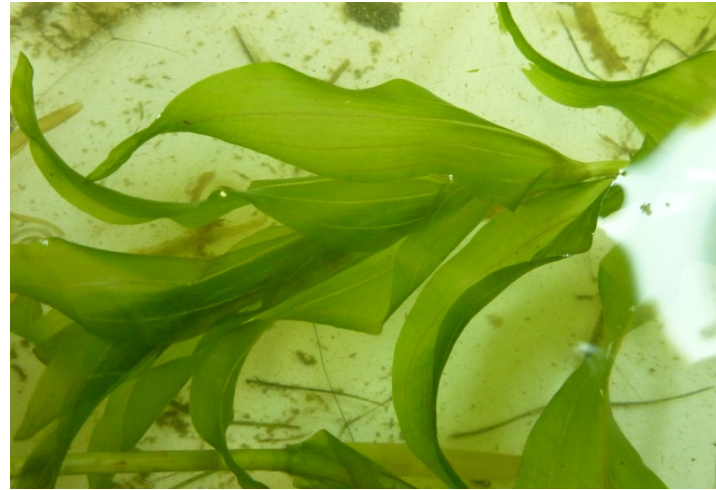


Figure B-8. *Potamogeton richardsonii* (Clasping-leaf Pondweed), Native



Figure B-9. *Warnstorfia fluitans* (water hook moss), Native



Figure B-11. Accumulation of *Potamogeton* on water surface.

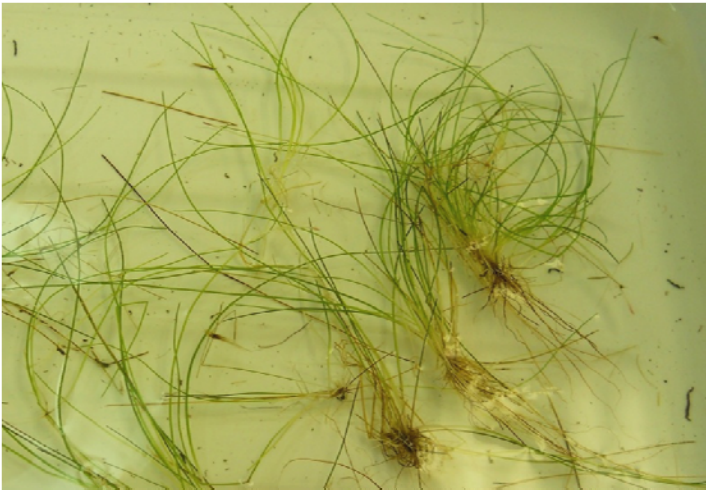


Figure B-10. *Eleocharis parvula* (dwarf spikerush), Native



Figure B-12. *Elodea nuttallii* from DeLong Lake (western waterweed), Invasive

Appendix C. Pesticide Cost Comparison

Table C-1. Cost Comparison for Chemical Treatment Methods between 2005 and 2011.

Product	Unit	Treatment Area	Units Needed	Unit Cost 2005 (\$)	Unit Cost 2011 (\$)	2005 Cost per treatment	2011 Cost per treatment
Sonar AS Liquid (Fluridone)	1 Quart	Whole Lake	53.0	550	699	\$30,886.00	\$38,647.00
Sonar AS Liquid (Fluridone)	1 Quart	10 ft Littoral	54.3	550	699	\$30,648.00	\$38,734.09
Sonar AS Liquid (Fluridone)	1 Quart	5 ft Littoral	11.5	550	699	\$6,748.00	\$8,067.73
Sonar SRP (Fluridone)	40 lb	Whole Lake	27.0	931	1126.4	\$26,763.00	\$32,012.80
Sonar SRP (Fluridone)	40 lb	10 ft Littoral	40.7	931	1126.4	\$38,678.00	\$46,627.90
Sonar SRP (Fluridone)	40 lb	10 ft Littoral	8.7	931	1126.4	\$8,456.00	\$9,746.81
Aquathol K (Endothall)	2.5 Gallons	Whole Lake	956.8	190.8	275	\$184,157.00	\$264,720.00
Aquathol K (Endothall)	2.5 Gallons	10 ft Littoral	514.6	190.8	275	\$98,978.00	\$142,304.27
Aquathol K (Endothall)	2.5 Gallons	5 ft Littoral	54.2	190.8	275	\$10,732.00	\$15,291.55
Hydrothol 191 Granular (Endothall)	40 lb	Whole Lake	--	--	220	\$285,037.00	--
Hydrothol 191 Granular (Endothall)	40 lb	10 ft Littoral	--	--	220	\$153,153.00	--
Hydrothol 191 Granular (Endothall)	40 lb	5 ft Littoral	--	--	220	\$16,453.00	--
Reward (Diquat)	2.5 Gallons	10 ft Littoral	107.2	351.0	465	\$38,427.00	\$50,648.00
Reward (Diquat)	2.5 Gallons	5 ft Littoral	22.8	351.0	465	\$8,400.00	\$11,002.00
Reward (Diquat)	2.5 Gallons	Individual Slip	0.014	351.0	465	\$155.00	\$156.62
Navigate (2,4-D)	50 lb	10 ft Littoral	402	165	191	\$67,110.00	\$77,582.00
Navigate (2,4-D)	50 lb	5 ft Littoral	86	165	191	\$14,503.00	\$16,826.00
Navigate (2,4-D)	50 lb	Individual Slip	0.05	165	191	\$158.00	\$159.55

Note: 2011 Unit Costs came from Aquatic Biologists, Inc., both on their website at <http://www.aquaticbiologists.com> and from personal communication.

Appendix D. EPA Pesticide Registration Sheets

70506-175

3/25/2010

1049



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

MAR 25 2010

Timothy M Formella
United Phosphorus, Inc
630 Freedom Business Center, Suite 402
King of Prussia, PA 19406

Dear Mr. Formella:

Subject: Revised Labeling
Hydrothol 191 Aquatic Algicide and Herbicide
EPA Registration No. 70506-175
Your Submission Dated March 24, 2010

The amendment referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended is acceptable provided that you:

1. Make the labeling changes listed below before you release the product for shipment bearing the amended labeling:

a. If all of the Precautionary Statements cannot appear on the front panel, add a referral statement similar to the following:

See back panel for additional precautionary statements.

b. Whenever an abbreviation appears on the labeling spell it out for the first time. On page 6 specify:

Cubic Feet per Second (CFS)

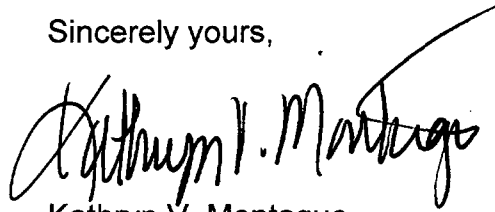
2. Submit one (1) copy of your final printed labeling before you release the product for shipment.

2009

-2-

A stamped copy of the labeling is enclosed for your records

Sincerely yours,

A handwritten signature in black ink, appearing to read "Kathryn V. Montague". The signature is written in a cursive style with a long, sweeping flourish extending from the top right of the name.

Kathryn V. Montague
Product Manager 23
Herbicide Branch
Registration Division (7505P)

Enclosure

30f9

HYDROTHOL 191

AQUATIC ALGICIDE AND HERBICIDE

ACTIVE INGREDIENT:

Mono(N,N-dimethylalkylamine**) salt of endothall* 53.0%

OTHER INGREDIENTS: 47.0%

TOTAL 100.0%

Contains 2 lb. endothall* per gallon

*7-oxabicyclo [2.2.1] heptane-2,3-dicarboxylic acid equivalent 23.36%

**Alkyl groups as derived from Coconut Oil

KEEP OUT OF REACH OF CHILDREN
DANGER

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.
- Call a 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 immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told 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 ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
- 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 866-673-6671 (Rocky Mountain Poison Control Center) for emergency medical treatment information.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

ACCEPTED
with COMMENTS
In EPA Letter Dated:

MAR 25 2010

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

70506-175

EPA Registration No. 70506-175

EPA Establishment No. 62171-MS-003

United Phosphorus, Inc.

630 Freedom Business Center, Suite 402

Net Contents: _____

King of Prussia, PA 19406

1 800-438-6071

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.
- Fish may be killed by dosages in excess of 0.3 ppm.
- Avoid contact with or drift to desirable plants or crops as injury may result.
- Clean out application equipment after each operation.
- Not for use in brackish or salt water.
- Do not use where fish are important resources.

PRODUCT INFORMATION

HYDROTHOL 191 is a liquid concentrate soluble in water and is a highly effective aquatic herbicide and algicide for use in irrigation and drainage canals, lakes and ponds. Apply when weeds and algae are actively growing. Note: Susceptibility of algae may vary due to subspecies, strains or environmental conditions. Dosage rates are measured in parts per million (ppm) endothall acid.

Necessary approval and/or permits should be obtained in states where required.

Drinking Water (Potable Water)

- Consult with appropriate state or local water authorities before applying this product to public waters. State or local agencies may require permits. The drinking water (potable water) restrictions on this label are to ensure that consumption of water by the public is allowed only when the concentration of endothall in the water is less than the MCL (Maximum Contamination Level) of 0.1 ppm. Applicators should consider the unique characteristics of the treated waters to assure that endothall concentrations in potable drinking water do not exceed 0.1 ppm at the time of consumption.
- For applications of endothall, the drinking water setback distance from functioning potable water intakes is greater than or equal to 600 feet.
- Note: Existing potable water intakes that are no longer in use, such as those replaced by a connection to a municipal water system or a potable water well, are not considered to be functioning potable water intakes.

Do not contaminate water intended for domestic purposes. Do not use treated water for animal consumption or for domestic purposes within the following periods:

- 0.3 ppm— 7 days after application
- 3.0 ppm—14 days after application
- 5.0 ppm—25 days after application

LAKES AND PONDS (Except Irrigation Canals/Ditches):

Use of endothall N,N-dimethylalkylamine salt is limited to algae and the following plants: Hygrophila*, Vallisneria, Hydrilla, Cabomba*, Bur weed*, *Elodea canadensis*, and Brazilian Elodea. * Not for this use in California

ALGAE CONTROL: HYDROTHOL 191 is effective on a broad range of planktonic, filamentous, and branched algae. Note: Susceptibility of algae may vary due to

subspecies, strains or environmental conditions. Generally rates of 0.05 to 0.3 ppm (0.6-3.6 pints per acre foot) are effective for the control of algae. Repeat applications when algae reappear and reach treatment levels. Dosages may be increased (from 0.3 to 1.5 ppm) where greater longevity of control is desired or to improve efficacy on species that prove difficult to control. Due to the potential for fish toxicity at higher rates, it is suggested that applications above 0.3 ppm be made only by commercial applicators as marginal or sectional treatments.

SUBMERGED AQUATICS: Apply HYDROTHOL 191 at 0.7 gallons to 4.0 gallons per acre foot (0.5 to 3.0 ppm) for control of aquatic weeds. HYDROTHOL 191 is for use on the following aquatic weeds: Hygrophila*, Vallisneria, Hydrilla, Cabomba*, Bur weed*, *Elodea canadensis*, and Brazilian Elodea. Due to the toxicity to fish, the use of HYDROTHOL 191 for submerged aquatic weeds is suggested only by commercial applicators on a marginal or sectional rather than overall type treatment. Use dosages over 1.0 ppm only on very narrow margins or in areas where some fish kill is not objectional. Do not treat more than 1/10 of the lake or pond at one time with doses in excess of 1.0 ppm. * Not for this use in California

RATE OF APPLICATION: LAKES AND PONDS

Algae or Weed	Rate (ppm)	Amount per Acre Ft.
Algae Planktonic, Filamentous Branched (Use in California limited to Cladophora, Pithophora, Spirogyra, Chara)	0.05-1.5	0.6-18.0 pints
Bur Reed*	2-3	2.7-4.0 gal.
Cabomba*	2-3	2.7-4.0 gal.
Brazilian Elodea	2-3	2.7-4.0 gal.
Elodea Canadensis	2-3	2.7-4.0 gal.
Hydrilla	1-2	1.4-2.7 gal.
Hygrophila*	2-3	2.7-4.0 gal.
Vallisneria	2-3	2.7-4.0 gal.

*Not for this use in California

HYDROTHOL 191 Rates for Irrigation Canals

Apply in a manner to achieve the desired rate and adequate mixing so the product is distributed throughout the entire water column. Adequate concentration (rate) and exposure time (length of treatment) will impact the efficacy of the herbicide (endothall) on the target weed species. Although endothall is a contact herbicide adequate exposure time is critical. The rates and the length of treatment are guidelines to provide control of the target species and assume that the entire canal is treated. This rate chart has been developed based on Concentration Exposure Time (CET) data for endothall. The CET concept allows rates and the length of exposure to be adjusted for different treatment scenarios.

Target Species	Rates	Duration	Restriction
Algae: Planktonic, Filamentous, Branched (Use in CA limited to Cladophora, Pithophora, Spirogyra, Chara)	0.05 – 1.5 ppm	6 – 120 hours	
Weeds Bur Reed* Cabomba* Coontail Elodea Canadensis Hydrilla Hygrophila* Milfoil(s) Naiad (Najas spp.) Pondweed (Potamogeton spp.) Water Stargrass* Vallisneria Zannichellia	0.2 – 5 ppm	6 – 120 hours	A maximum of 30ppm per growing season, not to exceed 5ppm per application. A minimum of a 7-day application interval, with no PHI

* Not for this use in CA

To calculate the amount of Hydrothol 191 required for a particular treatment use the following formula:

$$[\text{CFS} \times \text{Length of Treatment (hrs)} \times \text{rate (ppm)}] \times 0.11198 = \text{Gallons of Hydrothol 191 needed for treatment}$$

To calculate the amount of Hydrothol 191 to be applied per hour use the following formula:

$$\text{Gallons of Hydrothol 191 per hour} = \text{Gallons of Hydrothol 191} / \text{Length of Treatment (hrs)}$$

The “Directions for Use” of this product reflect the cumulative inputs from both historical field use and product testing programs. Actual field conditions may vary. Phytotoxicity is not expected, however all crop (species) and cultivars (varieties) have not been tested. Precautions: Crops have been shown to exhibit tolerance to endothall, however environmental and physiological stress may cause some crops to be susceptible.

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
DANGER**

CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE AND SKIN BURNS. MAY BE FATAL IF SWALLOWED, OR ABSORBED THROUGH SKIN.

7049

HARMFUL IF INHALED. DO NOT GET IN EYES, ON SKIN OR ON CLOTHING. AVOID BREATHING VAPOR OR SPRAY MIST.

Personal Protective Equipment (PPE)

Mixers, loaders, applicators and other handlers must wear:

- Coveralls long-sleeved shirt and long pants,
- Chemical-resistant footwear plus socks,
- Chemical-resistant gloves made of any waterproof material,
- Goggles or face shield,
- Chemical-resistant headgear for overhead exposure,
- Chemical-resistant apron when mixing, loading, or cleaning equipment and
- a NIOSH-approved respirator with a dust/mist filter with MSHA/NIOSH approval number prefix TC-21C or any N, R, P, or HE filter.

Exception: During application, the respirator need not be worn, provided that the pesticide is applied in a manner (such as direct metering or subsurface release from the rear of a vessel that is moving into the wind) such that the applicator will have no contact with the pesticide.

See Engineering Controls for additional requirements.

User Safety Requirements:

Follow the manufacturers' instructions for cleaning/maintaining PPE. If no such instructions for washable exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this products concentrate. Do not reuse them.

Engineering Controls:

When mixers and loaders use a closed system designed by the manufacturer to enclose the pesticide to prevent it from contacting handlers or other people AND the system is functioning properly and is used and maintained in accordance with the manufacturers written operating instructions, the handlers need not wear a respirator, provided the required respirator is immediately available for use in an emergency such as a spill or equipment breakdown.

User Safety Recommendations:

User should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

User should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

User should remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish. This pesticide is toxic to wildlife.

Do not contaminate water by cleaning of equipment or disposal of equipment wash waters or rinsate.

80f9

STORAGE AND DISPOSAL

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

Pesticide Storage: Store in the original container. Do not store in a manner where cross-contamination with other pesticides, fertilizers, food or feed could occur. In the event of spillage during handling or storage, absorb with sand or other inert material and dispose of absorbent in accordance with the Pesticide Disposal instructions listed below.

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

Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse container 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 $\frac{1}{4}$ 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.

Or

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

EMERGENCY TELEPHONE NUMBERS:

CHEMTREC: (800) 424-9300

MEDICAL: (866) 673-6671 Rocky Mountain Poison Control Center

IMPORTANT INFORMATION READ BEFORE USING PRODUCT

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

9029

The Directions for Use of this product reflect the opinion of experts based on field use and tests, and must be followed carefully. It is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of United Phosphorus, Inc. or Seller. Handling, storage, and use of the product by Buyer or User are beyond the control of United Phosphorus, Inc. and Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold United Phosphorus, Inc. and Seller harmless for any claims relating to such factors.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, UNITED PHOSPHORUS, INC. AND SELLER MAKE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ON THIS LABEL.

To the extent consistent with applicable law, United Phosphorus, Inc. or Seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product and **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF UNITED PHOSPHORUS, INC. AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF UNITED PHOSPHORUS, INC. OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

United Phosphorus, Inc. and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of sale and limitations of warranty and of liability, which may not be modified except by written agreement signed by the duly authorized representative of United Phosphorus, Inc.

Rev. 3/24/2010



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Ms. K. Jayne Walz
Product Registration
United Phosphorus, Inc.
630 Freedom Business Center, Suite 402
King of Prussia, PA 19406.

OCT 10 2008


SUBJECT: Application for Pesticide Notification (PRN 98-10)
Request Alternate Brand Name "Hydrothol Granular Aquatic Algicide and
Herbicide"
EPA Reg. No. 70506-174
Application Dated September 10, 2008

Dear Registrant:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 dated 09/10/08 for the above product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action(s) requested fall within the scope of PRN 98-10. The label submitted with the application has been stamped "Notification" and will be placed in our records.

If you have any questions, please call me directly at 703-305-6249 or Banza Djapao of my staff at 703-305-7269.

Sincerely,


Linda Arrington
Notifications & Minor Formulations Team Leader
Registration Division (7505P)
Office of Pesticide Programs



	United States Environmental Protection Agency Washington, DC 20460	<input type="checkbox"/> Registration <input type="checkbox"/> Amendment <input checked="" type="checkbox"/> Other	OPP Identifier Number
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Application for Pesticide - Section I

1. Company/Product Number 70506-174	2. EPA Product Manager Joanne Miller	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Hydrothol Granular Aquatic Algicide and Herbicide	PM# 23	
5. Name and Address of Applicant (Include ZIP Code) United Phosphorus, Inc. 630 Freedom Business Center, Suite 402 King of Prussia, PA 19406 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical to a pesticide registered and labeling to: EPA Reg. No. _____ OCT 10 2008 _____ Product Name _____	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Notification of Alternate Brand Name, Hydrothol Granular Aquatic Algicide and Herbicide, per PR Notice 98-10.

This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	2. Type of Container <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
* Certification must be submitted If "Yes" Unit Packaging wgt. No. per container		If "Yes" Package wgt No. per container	

3. Location of Net Contents Information
 Label Container

4. Size(s) Retail Container. _____

5. Location of Label Directions

6. Manner in Which Label is Affixed to Product
 Lithograph Paper, glued
 Stenciled Other _____

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)

Name K. Jayne Walz	Title Regulatory Manager	Telephone No. (Include Area Code) (610) 491-2817
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Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

2. Signature 	3. Title Regulatory Manager	6. Date Application Received (Stamped)
4. Typed Name K. Jayne Walz	5. Date 9/10/08	

2/2

HYDROTHOL Granular Aquatic Algicide and Herbicide

NOTIFICATION

OCT 10 2008

ACTIVE INGREDIENT:

Mono(N,N-dimethylalkylamine*) salt of endothall**	11.2%
OTHER INGREDIENTS:.....	88.8%
TOTAL	100.0%

*Alkyl groups as derived from Coconut Oil

**7-oxabicyclo [2.2.1] heptane-2,3-dicarboxylic acid equivalent 5%

**KEEP OUT OF REACH OF CHILDREN
DANGER**

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.
- 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 ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
- Call a poison control center or doctor for treatment advice.

IF SWALLOWED:

- Call a 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 by a poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

IF ON SKIN:

- 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 (303) 623-5716 for emergency medical treatment information.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

EPA Registration No. 70506-174

EPA Establishment No. 62171-MIS-003

United Phosphorus, Inc.

630 Freedom Business Center • Suite 402

King of Prussia, PA 19406

1 800-438-6071

Net Weight _____

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
DANGER**

CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE. HARMFUL IF SWALLOWED, ABSORBED THROUGH SKIN OR INHALED. DO NOT GET IN EYES OR ON CLOTHING. AVOID CONTACT WITH SKIN. WEAR GOGGLES OR FACE SHIELD WHEN HANDLING. Avoid breathing dust.

Personal Protective Equipment (PPE)

Mixers, loaders, applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Socks and shoes
- a NIOSH-approved half- or full-face respirator with a cartridge or canister approved for dusts and mists or a cartridge with any N, R, P, or He filter. Note: the quarter-face cup-style respirator does not meet this requirement. Exception: During application, the respirator need not be worn, *provided* that the pesticide is applied in a manner (such as direct metering or subsurface release from the rear of a vessel that is moving into the wind) that the applicator will have no contact with the pesticide.
- Chemical resistant gloves
- Protective eyewear

User Safety Requirements:

Follow the manufacturers' instructions for cleaning/maintaining PPE. If no such instructions for washable exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this products concentrate. Do not reuse them.

User Safety Recommendations:

Users should:

- Wear appropriate protective eyewear such as goggles, face shield, or safety glasses.
- Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.
- 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

This pesticide is toxic to fish. This pesticide is toxic to wildlife.

Do not contaminate water by cleaning of equipment wash waters. Do not contaminate water, food, or feed by storage or disposal.

Avoid contact with or drift to other crops or plants as injury may result.

Fish may be killed by dosages in excess of 0.3 ppm.

GENERAL INFORMATION

HYDROTHOL Granular is a highly effective contact algicide and aquatic herbicide for use in irrigation and drainage canals, lakes and ponds. Apply when weeds and algae are actively growing. Note: Susceptibility of algae may vary due to subspecies, strains or environmental conditions. Dosage rates are measured in parts per million (ppm) endothall acid.

Necessary approval and/or permits should be obtained in states where required. Consult state water or conservation authorities before applying to public waters or to ponds, canals or streams which flow into public waters.

DIRECTIONS FOR USE

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

Do not contaminate water intended for irrigation or domestic purposes.

Do not use in brackish or salt water.

Do not use water from treated areas for watering livestock, for preparing agricultural sprays for food crops, for irrigation or for domestic purposes within the following periods:

Up to 0.3 ppm— 7 days after application

Up to 3.0 ppm—14 days after application

Up to 5.0 ppm—25 days after application

Streams, Rivers, Channeled Water:

Do not use water for spraying or irrigation within 7 days after treatment.

Drinking Water (Potable Water)

- Consult with appropriate state or local water authorities before applying this product to public waters. State or local agencies may require permits. The drinking water (potable water) restrictions on this label are to ensure that consumption of water by the public is allowed only when the concentration of endothall in the water is less than the MCL (Maximum Contamination Level) of 0.1 ppm. Applicators should consider the unique characteristics of the treated waters to assure that endothall concentrations in potable drinking water do not exceed 0.1 ppm at the time of consumption.
- For applications of endothall, the drinking water setback distance from functioning potable water intakes is greater than or equal to 600 feet.
- Note: Existing potable water intakes that are no longer in use, such as those replaced by a connection to a municipal water system or a potable water well, are not considered to be functioning potable water intakes.

LAKES AND PONDS

ALGAE CONTROL: HYDROTHOL Granular is effective on a broad range of planktonic, filamentous, and branched algae. Note: Susceptibility of algae may vary due to subspecies, strains or environmental conditions. Generally, rates of 0.05 to 0.3 ppm (3-16 lbs. per acre foot) are effective for the control of algae. Repeat applications when algae reappear and reach treatment levels. Dosages may be increased (from 0.3 to 1.5 ppm) where greater longevity of control is desired or to improve efficacy on species that prove difficult to control. Due to the potential for fish toxicity at higher rates, it is suggested that applications above 0.3 ppm be made only by commercial applicators as marginal or sectional treatments. For floating mats HYDROTHOL Granular should be applied as evenly as possible.

SUBMERGED AQUATIC PLANTS: Apply HYDROTHOL Granular at 0.5 to 3.0 ppm (27 lbs. to 162 lbs. per acre foot) for control of aquatic weeds.

HYDROTHOL Granular is for use on the following aquatic weeds: Hydrilla, Hygrophila*, Elodea canadensis, Cabomba*, Bur Weed*, Vallisneria, and Brazilian Elodea. Due to the toxicity to fish, the use of HYDROTHOL Granular for submerged aquatic weeds is suggested only by commercial applicators on a marginal or sectional rather than overall type treatment. Use dosages over 1.0 ppm on very narrow margins or in areas where some fish kill is not objectionable. Do not treat more than 1/10 of the lake or pond at one time with doses in excess of 1.0 ppm.

*Not for this use in California

RATE OF APPLICATION: LAKES AND PONDS

Algae or Weed	Rate (ppm)	Pounds per Acre Ft.
Algae Planktonic Filamentous Branched (Use in California limited to Cladophora, Pithophora, Spirogyra, Chara)	0.05-1.5 ppm**	3-81
Bur Reed*	2-3	108-162
Cabomba*	2-3	108-162
Brazilian Elodea	2-3	108-162
Elodea canadensis	2-3	108-162
Hydrilla	1-2	54-108
Hygrophila*	2-3	108-162
Vallisneria	2-3	108-162

*Not for this use in California

**See specific use instructions under Algae Control

Low rates of 0.05-0.2 ppm should be used on light infestation of planktonic and filamentous algae. Higher rates should be used for branched algae species. Moderate algae infestations generally require 0.2-0.5 ppm. Marginal treatments require 0.3-0.8 ppm.

RATE OF APPLICATION: IRRIGATION AND DRAINAGE CANALS

Algae Controlled: Planktonic, filamentous and branched algae (Use in California limited to Cladophora, Pithophora, Spirogyra, Chara). Submerged aquatic plants controlled: Hydrilla, Hygrophila*, Naiad, Elodea canadensis, Cabomba*, Coontail, Bur Reed*, Milfoil, Pondweed (Potamogeton spp.), Vallisneria, Zannichellia, and Water Stargrass*. Due to fish toxicity, application utilizing rates higher than 0.3 ppm should be made by commercial applicators only.

HEAVY INFESTATIONS—Apply 3 to 5 ppm (162 to 270 lbs.) HYDROTHOL Granular per acre foot of water with suitable aerial or ground application equipment.

MODERATE OR LIGHT INFESTATIONS—Apply 1 to 2 ppm (54 to 108 lbs.)

HYDROTHOL Granular per acre foot of water with suitable aerial or ground application equipment.

IRRIGATION AND DRAINAGE CANAL APPLICATIONS

Pounds of HYDROTHOL Granular required per mile of canal or swath, 1 ft. deep.

ppm	WIDTH OF CANAL, DITCH OR SWATH				
	10	15	20	30	40
0.5	33	49	65	95	130
1.0	65	98	130	190	260
2.0	130	195	260	380	520
3.0	195	294	390	570	780
4.0	260	392	520	760	1040
5.0	325	490	650	950	1300

Note: 5.5 lbs. per acre foot equals 0.1 ppm of Endothall (acid).

LAKE AND POND APPLICATIONS

Depth	PPM Concentrations						
	0.05 ppm	0.1 ppm	0.2 ppm	0.5 ppm	1.0 ppm	1.5 ppm	5.0 ppm
1 ft.	3	5	11	27	54	82	250
2 ft.	5	11	22	54	109	163	550
4 ft.	11	22	44	109	217	326	1100
6 ft.	16	33	65	163	326	489	1650

*One acre equals approximately 208' x 208'

STORAGE AND DISPOSAL

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

Pesticide Storage Instructions: Store in the original container, preferably in a locked storage area. Do not store in a manner where cross-contamination with other pesticides, fertilizers, food or feed could occur. If spilled during storage or handling, sweep up spillage and dispose of in accordance with the Pesticide Disposal Instructions listed below.

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

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

EMERGENCY TELEPHONE NUMBERS:

CHEMTREC: (800) 424-9300

MEDICAL: (303) 623-5716 Rocky Mountain Poison Control Center

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials, resistant strains or other influencing factors in the use of the product. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold UPI, Manufacturer and Seller harmless for any claims relating to such factors. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, UPI AND MANUFACTURER MAKE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ON THIS LABEL.

To the extent consistent with applicable law, UPI, Manufacturer or Seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF UPI, MANUFACTURER AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF UPI, MANUFACTURER OR SELLER, THE REPLACEMENT OF THE PRODUCT.

UPI, Manufacturer and Seller offer this product, subject to the foregoing conditions of sale and limitations of warranty and of liability, which may not be modified except by written agreement signed by a duly authorized representative of UPI, Inc.

100-1091

10/9/2009

10027



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Pat Dinnen
Regulatory Specialist
Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419

OCT 9 2009

SUBJECT: Applications for Pesticide Notification – Label Changes per PR Notice 2007-4
Pennant MAGNUM® Herbicide EPA Reg. No. 100- 950
Reglone® Dessicant EPA Reg. No. 100-1061
Reward® Landscape and Aquatic Herbicide EPA Reg. No. 100-1091
Applications Dated April 24, 2009

Dear Ms. Dinnen:


The Agency is in receipt of your Applications for Pesticide Notification under Pesticide Registration Notice (PRN) 2007-4 for the above products. The Registration Division (RD) has conducted a review of these requests for their applicability under PRN 2007-4 and finds that the actions requested fall within the scope of PRN 2007-4. The labels submitted with the applications are considered “acceptable”, date stamped “Notification”, and will be placed in our records.

Please be reminded that 40 CFR Part 156.140(a)(4) requires that a batch code, lot number, or other code identifying the batch of the pesticide distributed and sold be placed on nonrefillable containers. The code may appear either on the label (and can be added by non-notification/PR Notice 98-10) or durably marked on the container itself.

If you have any questions, please call me directly at 703-305-6249 or Terri Stowe of my staff at 703-305-6117.

Sincerely,

Linda Arrington
Notifications & Minor Formulations Team Leader
Registration Division (7505P)
Office of Pesticide Programs

 Environmental Protection Agency Washington, DC 20460	United States	<input type="checkbox"/>	Registration	OPP Identifier Number
		<input type="checkbox"/>	Amendment	Notification
		<input checked="" type="checkbox"/>	Other	

Application for Pesticide - Section I

1. Company/Product Number 100-1091	2. EPA Product Manager Joanne Miller	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Reward Landscape and Aquatic Herbicide	PM# 23	
5. Name and Address of Applicant (Include ZIP Code) Syngenta Crop Protection, Inc. P. O. Box 18300 Greensboro, NC 27419 <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____	NOTIFICATION OCT - 9 2009
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.	
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.	

Explanation: Use additional page(s) if necessary. (For Section I and Section II.).

Notification of label change per PR Notice 2007-4. This Notification is consistent with the guidance of PR Notice 2007-4 and the requirements of EPA's regulations at 40 CFR §§156.10, 156.140, 156.144, 156.146, and 156.156. No other changes have been made to the labeling or the Confidential Statement of Formula for this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if the amended label is not consistent with the requirements of 40 CFR §§156.10, 156.140, 156.144, 156.146, and 156.156, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

Syngenta is amending the Storage and Disposal section of the label by Notification according to the directions stated in PR Notice 2007-4.

Section - III

1. Material This Product Will Be Packaged In:			
Child-Resistant Packaging <input type="checkbox"/> Yes* <input type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2. Type of Container <input type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
<i>*Certification must be submitted</i>		If "Yes" Unit Packaging wgt. No. per Container	If "Yes" Unit Packaging wgt. No. per container
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 1 gal., 2.5 gal., 120 gal.	5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled <input checked="" type="checkbox"/> Other <u>Pressure Sensitive</u>			

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Pat Dinnen	Title Label Group Leader	Telephone No. (Include Area Code) 336-632-2494
Certification		6. Date Application Received (Stamped)
I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		
2. Signature <i>Pat Dinnen</i>	3. Title Regulatory Specialist	
4. Typed Name Pat Dinnen	5. Date April 24, 2009	

3 of 27

Syngenta Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419-8300
www.syngenta.com



FedEx

April 24, 2009

Document Processing Desk (NOTIF)
Office of Pesticide Programs (7504P)
U.S. Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202-4501

Attention: Ms. Linda Arrington

**SUBJECT: REWARD® LANDSCAPE AND AQUATIC HERBICIDE
EPA REG. NO. 100-1091
NOTIFICATION OF LABEL CHANGE PER PR NOTICE 2007-4**

Syngenta Crop Protection, Inc. is submitting Notification for Reward Landscape and Aquatic Herbicide, EPA Reg. No. 100-1091. Syngenta is amending the Storage and Disposal section of the label by Notification according to the directions stated in PR Notice 2007-4.

Attached are:

- One copy of the label with the changes clearly marked
- One unmarked copy of the label
- A CD of the unmarked copy of the label for "Electronic Comparison and Review"
- Certificate with Respect to Label Integrity Form
- Completed EPA Form 8570-1

Thank you in advance for approving this Notification. If you have any questions, please contact me at 336-632-2494.

Sincerely,

Pat Dinnen
Label Group Leader
Regulatory Affairs

Enclosures

Certification with Respect to Label Integrity

Version: 9/11/02

I certify that the information (including, but not limited to, text, tables, and graphics) contained in the electronic file identified below by file name and submitted with this certification is the same information as that on the paper copies of these documents included with this submission.

PROPOSED LABEL		
EPA Registration #	Date Submitted to EPA	Electronic file name
100-1091	04/24/2009	000100-01091.20090423.REWARD-LS-AQ_PRN2007-4_APRIL2009.pdf

I certify that the statements that I have made on this form are true, accurate, and complete. I acknowledge that any knowingly false or misleading statements may be punishable by fine or imprisonment or both under applicable law.

Pat Dinnen
Signature

April 24, 2009
Date

Pat Dinnen
Name (typed)

Label Group Leader
Title

50927

Reward® Landscape and Aquatic Herbicide

TO PREVENT ACCIDENTAL POISONING, NEVER PUT INTO FOOD, DRINK, OR OTHER CONTAINERS, AND USE STRICTLY IN ACCORDANCE WITH ENTIRE LABEL.

NOTIFICATION

DO NOT USE THIS PRODUCT FOR REFORMULATION.

OCT - 9 2009

Active ingredient:

Diquat dibromide [6,7-dihydrodipyrdo (1,2-a:2',1'-c) pyrazinediium dibromide] 37.3%

Other Ingredients: 62.7%

Total: 100.0%

Contains 2 lbs. diquat cation per gal. (3.73 lbs. diquat dibromide per gal.)

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements on label.

EPA Reg. No. 100-1091

EPA Est. 100-LA-001

Product of United Kingdom
Formulated in the USA

1 gallon 2.5 gallons 120 gallons
Net Contents Net Contents Net Contents

FIRST AID	
If inhaled	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Call a 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 in eyes	<ul style="list-style-type: none"> • 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 on skin or clothing	<ul style="list-style-type: none"> • 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.
NOTE TO PHYSICIANS	
<p>To be effective, treatment for diquat poisoning must begin IMMEDIATELY. Treatment consists of binding diquat in the gut with suspensions of activated charcoal or bentonite clay, administration of cathartics to enhance elimination, and removal of diquat from the blood by charcoal hemoperfusion or continuous hemodialysis.</p>	
<p>Have the product container or label with you when calling a poison control center or doctor or going for treatment.</p>	
HOTLINE NUMBER	
<p>For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call 1-800-888-8372</p>	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with eyes, skin, or clothing.

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are: barrier laminate, butyl rubber ≥14 mils, nitrile rubber ≥14 mils. If you want more options, follow the instructions for Category A on an EPA Chemical Resistance Category Selection Chart.

Mixers, Loaders, Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants or coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing, or loading
- Face shield when mixing or loading

Exception: After this product has been diluted to 0.50% Reward or less in water (i.e., the labeled rate for some spot applications), applicators for AQUATIC SURFACE APPLICATIONS must, at a minimum, wear (Note - Mixers and Loaders for this application method must still wear the personal protective equipment (PPE) as described in the above section):

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves
- Protective eyewear

Exception: At a minimum, applicators for AQUATIC SUBSURFACE APPLICATIONS must wear (Note - Mixers and Loaders for this application method must still wear the personal protective equipment (PPE) as described in the above section):

- Short-sleeved shirt and short pants
- Waterproof gloves
- Chemical-resistant footwear plus socks

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Control Statements

Mixers and loaders supporting aerial applications are required to use closed systems that provide dermal protection. The closed system must be used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural

pesticides [40 CFR 170.240(d)(4)]. When using the closed system, mixers and loaders' PPE requirements may be reduced or modified as specified in the WPS.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Prolonged contact of the product with the skin may produce burns.
- 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

This pesticide is toxic to aquatic invertebrates. **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 wash water. **For Aquatic Uses** do not apply directly to water except as specified on this label.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, Inc. or Seller. To the extent permitted by applicable law, Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. To the extent permitted by applicable law: (1) this warranty does not extend to the use of the product contrary to label instructions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and, (2) Buyer and User assume the risk of any such use. To the extent permitted by applicable law, SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.

To the extent permitted by applicable law, in no event shall SYNGENTA be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

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

READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.

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

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 exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 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 over short-sleeved shirt and short pants, or coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep all unprotected persons out of operating areas or vicinity where there may be drift.

For terrestrial uses, do not enter or allow entry of maintenance workers into treated areas, or allow contact with treated vegetation wet with spray, dew, or rain, without appropriate protective clothing until spray has dried.

For aquatic uses, do not enter treated areas while treatments are in progress.

SPECIFIC USE DIRECTIONS

Reward Landscape and Aquatic Herbicide is a nonvolatile herbicidal chemical for use as a general herbicide to control weeds in commercial greenhouses and nurseries; ornamental seed crops (flowers, bulbs, etc. – except in the state of California); landscape, industrial, recreational, commercial, residential, and public areas; turf renovation (all turf areas except commercial sod farms); dormant established turfgrass (bermudagrass, zoysiagrass – nonfood or feed crop); and aquatic areas. Absorption and herbicidal action is usually quite rapid with effects visible in a few days. Reward Landscape and Aquatic Herbicide controls weeds by interfering with photosynthesis within green plant tissue. Weed plants should be succulent and actively growing for best results. Rinse all spray equipment thoroughly with water after use. Avoid spray drift to crops, ornamentals, and other desirable plants during application, as injury may result. Application to muddy water may result in reduced control. Minimize creating muddy water during application. Use of dirty or muddy water for Reward Landscape and Aquatic Herbicide dilution may result in reduced herbicidal activity. Avoid applying under conditions of high wind, water flow, or wave action.

SPRAY DRIFT MANAGEMENT

Avoiding spray drift at the application site is the responsibility of the applicator and the grower. 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.

The following drift management requirements must be followed to avoid off-target movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses, or to applications using dry formulations.

- The distance of the outermost nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wingspan or rotor.
- Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45 degrees.

Where states have more stringent regulations, they should be observed.

Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that 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

- **Volume** - 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 higher 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-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length

For some use patterns, reducing the effective boom length to less than $\frac{3}{4}$ of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height

Applications should not be made at a height greater than 10 ft. above the top of the target plants, unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment

When applications are made with a crosswind, the swath will be displaced downwind. 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

Applications should not occur 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 wind is blowing away from adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops).

COMMERCIAL GREENHOUSES AND NURSERIES

For general weed control in commercial greenhouses (beneath benches), field grown and container stock, and other similar areas, Reward Landscape and Aquatic Herbicide may be applied preplant or postplant preemergence in field grown ornamental nursery plantings or postemergence as a directed spray. Reward Landscape and Aquatic Herbicide may also be applied preemergence in ornamental seed crops (except in the state of California). Avoid contact with desirable foliage as injury may occur. Do not use on food or feed crops.

Spot spray: 1-2 qts. Reward Landscape and Aquatic Herbicide plus the labeled rate of a 75% or greater nonionic surfactant per 100 gals. of water, or 0.75 oz. (22 mls.) Reward Landscape and Aquatic Herbicide plus the labeled rate of a 75% or greater nonionic surfactant per 1 gal. of water.

Broadcast: 1-2 pts. Reward Landscape and Aquatic Herbicide in a minimum of 15 gals. of water per acre. Add the labeled rate of a 75% or greater nonionic surfactant per 100 gals. of spray mixture. Use an adequate spray volume to insure good coverage.

ORNAMENTAL SEED CROPS (FLOWERS, BULBS, ETC.) EXCEPT IN THE STATE OF CALIFORNIA

For preharvest desiccation of ornamental seed crops. NOT FOR FOOD OR FIBER CROPS.

Broadcast (Air or Ground): 1.5-2 pts. Reward Landscape and Aquatic Herbicide plus the labeled rate of a 75% or greater nonionic surfactant per acre in sufficient water (minimum of 5 gals. by air; 15 gals. by ground) for desiccation and weed burndown. Repeat as needed at no less than 5-day intervals up to three applications. Do not use seed, screenings, or waste as feed or for consumption.

DIRECTIONS FOR LANDSCAPE, INDUSTRIAL, RECREATIONAL, COMMERCIAL, RESIDENTIAL, AND PUBLIC AREAS

Reward Landscape and Aquatic Herbicide provides fast control of broadleaf and grassy weeds in industrial, recreational, golf course, commercial, residential, and public areas.

Reward Landscape and Aquatic Herbicide is a nonselective herbicide that rapidly kills undesirable above ground weed growth in 24-36 hours. Avoid application of Reward Landscape and Aquatic Herbicide to desirable plants.

Reward Landscape and Aquatic Herbicide is a contact/desiccant herbicide; it is essential to obtain complete coverage of the target weeds to get good control. Improper application technique and/or application to stressed weeds may result in unacceptable weed control. For best results, apply to actively growing, young weeds.

Difficult weeds (such as perennial or deeply-rooted weeds) can often be controlled by tank mixing Reward Landscape and Aquatic Herbicide with other systemic-type herbicides. Refer to other product labels for specific application directions.

For residual weed control, tank mix Reward Landscape and Aquatic Herbicide with a preemergent herbicide labeled for the intended use site. When mixing Reward Landscape and Aquatic Herbicide with another herbicide, it is recommended to mix just a small amount first to determine if the mixture is physically compatible before proceeding with larger volumes.

Syngenta has not tested all possible tank mixtures with other herbicides for compatibility, efficacy or other adverse effects. Before mixing with other herbicides Syngenta recommends you first consult your state experimental station, state university or extension agent.

Grounds maintenance weed control: Reward Landscape and Aquatic Herbicide can be used as a spot or broadcast spray to control weeds in public, commercial and residential landscapes, including landscape beds, lawns, golf courses and roadsides. Reward Landscape and Aquatic Herbicide can also be used for weed control around the edges and nonflooded portions of ponds, lakes and ditches.

Trim and Edge weed control: Reward Landscape and Aquatic Herbicide can be used to eliminate undesired grass and broadleaf plant growth in a narrow band along driveways, walkways, patios, cart paths, fence lines, and around trees, ornamental gardens, buildings, other structures, and beneath noncommercial greenhouse benches. Vegetation control with Reward Landscape and Aquatic Herbicide is limited to the spray application width. Do not exceed the labeled rate of Reward Landscape and Aquatic Herbicide as excessive rates may result in staining of concrete-based materials.

Reward Landscape and Aquatic Herbicide, since it does not translocate systemically, can be used as an edging or pruning tool when precisely applied to select areas of grass or to undesirable growth on desirable ornamental bedding plants, ground covers, etc.

Industrial weed control: Reward Landscape and Aquatic Herbicide can be used as a spot or broadcast spray either alone or in combination with other herbicides as a fast burndown or control weeds in rights-of-ways, railroad beds/yards, highways, roads,

dividers and medians, parking lots, pipelines, pumping stations, public utility lines, transformer stations and substations, electric utilities, storage yards, and other non-crop areas.

Spot spray: Apply either 1-2 qts. of Reward Landscape and Aquatic Herbicide plus the labeled rate of a 75% or greater nonionic surfactant per 100 gals. water, or 0.75 oz. (22 mls.) Reward Landscape and Aquatic Herbicide plus the labeled rate of a 75% or greater nonionic surfactant per 1 gal. of water.

Broadcast: 1-2 pts. Reward Landscape and Aquatic Herbicide per acre in sufficient water to insure good spray coverage. Add the labeled rate of 75% or greater nonionic surfactant per 100 gals. spray mixture. Greater water volumes are necessary if the target plants are tall and/or dense. It is recommended that 60 gals. or greater water volume be used to obtain good coverage of dense weeds.

TURF RENOVATION (ALL TURF AREAS EXCEPT COMMERCIAL SOD FARMS)

To desiccate golf course turf and other turf areas prior to renovation, apply 1-2 pts. of Reward Landscape and Aquatic Herbicide per acre plus the labeled rate of a 75% or greater nonionic surfactant in 20-100 gals. of water (4 teaspoons of Reward Landscape and Aquatic Herbicide plus the labeled rate of a 75% or greater nonionic surfactant per 1 gal. of water) using ground spray equipment. Apply for full coverage and thorough contact with the turfgrass. Apply only when the turf is dry, free from dew and incidental moisture. For enhanced turf desiccation, especially in the case of thick turfgrass, water volumes should approach 100 gals. of water per acre.

For **suppression** of regrowth and quick desiccation of treated turfgrass, Reward Landscape and Aquatic Herbicide may be mixed with other systemic nonselective or systemic postemergence grassy weed herbicides. Refer to other product labels for specific application directions and restrictions.

Avoid spray contact with, or spray drift to, foliage of ornamental plants or food crops.

Do not graze livestock on treated turf or feed treated thatch to livestock.

DORMANT ESTABLISHED TURFGRASS (BERMUDAGRASS, ZOYSIAGRASS), NONFOOD OR FEED CROP

For control of emerged annual broadleaf and grass weeds, including Little Barley*, Annual Bluegrass, Bromes including Rescuegrass, Sixweeks fescue, Henbit, Buttercup, and Carolina Geranium in established dormant bermudagrass lawns, parks, golf courses, etc.

Apply 1-2 pts. Reward Landscape and Aquatic Herbicide per acre in 20-100 gals. of spray mix by ground as a broadcast application. Add the labeled rate of a 75% or greater nonionic surfactant per 100 gals. of spray mixture.

Bermudagrass must be dormant at application. Application to actively growing bermudagrass may cause delay or permanent injury. Users in the extreme Southern areas should be attentive to the extent of dormancy at the time of application.

*For control of Little Barley, apply Reward Landscape and Aquatic Herbicide prior to the mid-boot stage.

AQUATIC USE DIRECTIONS

New York – Not for Sale or Use in New York State without Supplemental Special Local Needs Labeling.

Necessary approval and/or permits must be obtained prior to application if required. Consult the responsible State Agencies (i.e., Fish and Game Agencies, State Water Conservation authorities, or Department of Natural Resources).

Treatment of dense weed areas may result in oxygen loss from decomposition of dead weeds. This loss of oxygen may cause fish suffocation. Therefore, treat only 1/3 to 1/2 of the water body area at one time and wait 14 days between treatments.

For best results on submersed weeds, Reward Landscape and Aquatic Herbicide should be applied to actively growing (photosynthesizing) weeds when water temperatures have reached or exceeded approximately 50°F, typically during the Spring or early Summer.

For application only to **still water** (i.e. ponds, lakes, and drainage ditches) where there is minimal or no outflow to public waters.

and/or

For applications to **public waters** in ponds, lakes, reservoirs, marshes, bayous, drainage ditches, canals, streams, rivers, and other slow-moving or quiescent bodies of water for control of aquatic weeds. For use by:

- Corps of Engineers; or
- Federal or State Public Agencies (i.e., Water Management District personnel, municipal officials); or
- Applicators and/or Licensees (Certified for aquatic pest control) that are authorized by the State or Local government.
-

Treated water may be used according to the following table or until such time as an approved assay (example: PAM II Spectromatic Method) shows that the water does not contain more than the designated maximum contaminant level goal (MCLG) of 0.02 mg/l. (ppm) of diquat dibromide (calculated as the cation).

Water Use Restrictions Following Applications With Reward Landscape And Aquatic Herbicide (Days)

Application Rate	Drinking	Fishing and Swimming	Livestock/Domestic Animals Consumption	Spray Tank Applications** and Irrigation to Turf and Landscape Ornamentals	Spray Tank Applications** and Irrigation to Food Crops and Production Ornamentals
2 gals./surface acre	3 days	0	1 day	3 days	5 days
1 gal./surface acre	2 days	0	1 day	2 days	5 days
0.75 gal./surface acre	2 days	0	1 day	2 days	5 days
0.50 gal./surface acre	1 day	0	1 day	1 day	5 days
Spot Spray*(<0.5 gal./surface acre)	1 day	0	1 day	1 day	5 days

*Add a nonionic surfactant (with at least 75% of the constituents active as a spray adjuvant) at the rate recommended by the manufacturer.

**For preparing agricultural sprays for food crops, turf or ornamentals (to prevent phytotoxicity), do not use water treated with Reward Landscape and Aquatic Herbicide before the specified time period.

When the contents of more than one spray tank is necessary to complete a single aquatic application, no water holding restrictions apply between the consecutive spray tanks.

No applications are to be made in areas where commercial processing of fish, resulting in the production of fish protein concentrate or fish meal, is practiced. Before application, coordination and approval of local and/or State authorities must be obtained.

Floating and Marginal Weeds Including:

- Water lettuce, *Pistia stratiotes*
- Water hyacinth, *Eichhornia crassipes*
- Duckweed, *Lemna* spp.
- Salvinia spp. (including *S. molesta*)
- Pennywort (*Hydrocotyle* spp.)
- Frog's Bit¹, *Limnobium spongia*
- Cattails, *Typha* spp.

¹Not for use in California

Reward Landscape and Aquatic Herbicide may be applied by backpack, airboat, spray handgun, helicopter, airplane, or similar application equipment that results in thorough spray coverage.

Spot Treatment: Apply Reward Landscape and Aquatic Herbicide at 2 quarts per 100 gallons spray carrier (0.5% solution) with an approved aquatic wetting agent at 0.25-1.0% v/v (1 quart to 1 gallon per 100 gallons water). For cattail control, Reward Landscape and Aquatic Herbicide should be applied prior to flowering at the maximum application rate (8 quarts of Reward Landscape and Aquatic Herbicide/100 gallons spray carrier) plus the wetting agent. Repeat treatments may be necessary for complete control.

Spray to completely wet target weeds but not to runoff. Densely packed weeds or mats may require additional applications due to incomplete spray coverage. Re-treat as needed. For best results, re-treat weed escapes within 2 weeks of the initial treatment.

Broadcast Treatment: Apply Reward Landscape and Aquatic Herbicide at the rate of 0.5-2.0 gallons per surface acre in sufficient carrier along with 16-32 oz./A of an approved wetting agent. Re-treat as necessary for densely populated weed areas. Good coverage is necessary for control of the target weeds.

For duckweed control, apply Reward Landscape and Aquatic Herbicide at 1-2 gallons/A.

Submersed Weeds Including:

- Bladderwort, *Utricularia* spp.
- Hydrilla, *Hydrilla verticillata*
- Watermilfoils (including Eurasian), *Myriophyllum* spp.
- Pondweeds¹, *Potamogeton* spp.
- Coontail, *Ceratophyllum demersum*
- Elodea, *Elodea* spp.
- Brazilian Elodea, *Egeria densa*
- Naiad, *Najas* spp.
- Algae², *Spirogyra* spp. and *Pithophora* spp.

¹Reward Landscape and Aquatic Herbicide controls *Potamogeton* species except Richardson's pondweed, *P. richardsonii*.

²Suppression only. For control of *Spirogyra* and/or *Pithophora*, use Reward Landscape and Aquatic Herbicide in a tank mix with an approved algaecide.

For severe weed or algae infestations, the use of an approved algaecide either as a pretreatment to the Reward Landscape and Aquatic Herbicide application or in a tank mix, may result in enhanced weed control.

To control submersed weeds, apply Reward Landscape and Aquatic Herbicide in water at 0.5-2.0 gallons per surface acre (per 4 foot water depth). For severe weed infestations, use the 2.0 gallon per surface acre rate. For best results, re-treat as

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necessary on 14-21 day intervals. The table below shows how many gallons of Reward Landscape and Aquatic Herbicide to apply per surface acre based on water depth.

	Gallons of Reward Landscape and Aquatic Herbicide per Surface Acre			
	Average Water Depth			
	1 Foot	2 Feet	3 Feet	4 Feet
1 gallon/acre rate	0.25 gal.	0.50 gal.	0.75 gal.	1.0 gal.
2 gallon/acre rate	0.50 gal.	1.0 gal	1.5 gals.	2.0 gals.

Note: For water depths of 2 feet or less including shorelines, do not exceed 1 gallon per surface acre.

Subsurface Applications: Where the submersed weed growth, especially Hydrilla, has reached the water surface, apply either in a water carrier or an invert emulsion through boom trailing hoses carrying nozzle tips to apply the dilute spray below the water surface to insure adequate coverage.

Bottom Placement: Where submersed weeds such as Hydrilla, Bladderwort, or Coontail have reached the water surface and/or where the water is slowly moving through the weed growth, the use of an invert emulsion carrier injecting diluted Reward Landscape and Aquatic Herbicide near the bottom with weighted hoses may improve control. The addition of a copper based algaecide may improve control. If algae are present along with the submersed weeds, a pretreatment with a copper based algaecide may improve overall control.

Surface Application for Submerged Aquatic Weeds: Apply the recommended rate of Reward Landscape and Aquatic Herbicide as a spray in sufficient carrier to fully cover the target area. Applications should be made to ensure complete coverage of the weed areas. In mixed weed populations, use the high rate of application as indicated by weeds present. For dense submersed weeds or water over 2 feet deep, a surface spray is not recommended (Reward Landscape and Aquatic Herbicide should be applied subsurface in these situations.)

If posting is required by your state or tribe – consult the agency responsible for pesticide regulations for specific details.

STORAGE AND DISPOSAL

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

Pesticide Storage

Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Do not contaminate feed, foodstuffs, or drinking water. Do not store or transport near feed or food. Store at temperatures above 32°F. For help with any spill, leak, fire, or exposure involving this material, call **1-800-888-8372**.

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Pesticide Disposal

Open dumping is prohibited. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Handling [less than 5 gallons]

Non-refillable 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 and 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, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Container Handling [Bulk/Mini-Bulk]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the person refilling. To clean container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of container in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities. If the container is damaged, leaking or obsolete, contact Syngenta Crop Protection at 1-800-888-8372.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

Reward®, the Syngenta logo, and the CP FRAME are trademarks of a Syngenta Group Company.

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©200_ Syngenta

For non-emergency (e.g., current product information), call
Syngenta Crop Protection at 1-800-334-9481.

Manufactured for:
Syngenta Crop Protection, Inc.
P. O. Box 18300
Greensboro, North Carolina 27419-8300
www.syngenta-us.com

230427

CONTAINER LABEL

Reward® Landscape and Aquatic Herbicide

TO PREVENT ACCIDENTAL POISONING, NEVER PUT INTO FOOD, DRINK, OR OTHER CONTAINERS, AND USE STRICTLY IN ACCORDANCE WITH ENTIRE LABEL.

DO NOT USE THIS PRODUCT FOR REFORMULATION.

Active ingredient:

Diquat dibromide [6,7-dihydrodipyrido (1,2-a:2',1'-c) pyrazinediium dibromide]	37.3%
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Other Ingredients:	62.7%
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Total:	100.0%
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Contains 2 lbs. diquat cation per gal. (3.73 lbs. diquat dibromide per gal.)

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements on label.

AGRICULTURAL USE REQUIREMENTS
Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

1 gallon
Net Contents

2.5 gallons
Net Contents

120 gallons
Net Contents

FIRST AID	
If inhaled	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 in eyes	<ul style="list-style-type: none"> • 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 on skin or clothing	<ul style="list-style-type: none"> • 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.
NOTE TO PHYSICIANS	
<p>To be effective, treatment for diquat poisoning must begin IMMEDIATELY. Treatment consists of binding diquat in the gut with suspensions of activated charcoal or bentonite clay, administration of cathartics to enhance elimination, and removal of diquat from the blood by charcoal hemoperfusion or continuous hemodialysis.</p>	
<p>Have the product container or label with you when calling a poison control center or doctor or going for treatment.</p>	
HOTLINE NUMBER	
<p>For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call 1-800-888-8372</p>	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with eyes, skin, or clothing.

Environmental Hazards

This pesticide is toxic to aquatic invertebrates. **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 wash water. **For Aquatic Uses** do not apply directly to water except as specified on this label.

[Bulk Only]:

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, Inc. or Seller. To the extent permitted by applicable law, Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. To the extent permitted by applicable law: (1) this warranty does not extend to the use of the product contrary to label instructions under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and, (2) Buyer and User assume the risk of any such use. To the extent permitted by applicable law, SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.

To the extent permitted by applicable law, in no event shall SYNGENTA be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

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SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

STORAGE AND DISPOSAL

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

Pesticide Storage

Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Do not contaminate feed, foodstuffs, or drinking water. Do not store or transport near feed or food. Store at temperatures above 32°F. For help with any spill, leak, fire, or exposure involving this material, call 1-800-888-8372.

Pesticide Disposal

Open dumping is prohibited. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Handling [less than 5 gallons]

Non-refillable 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 and 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, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Container Handling [Bulk/Mini-Bulk]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the person refilling. To clean container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate

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collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities. If the container is damaged, leaking or obsolete, contact Syngenta Crop Protection at 1-800-888-8372.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!

EPA Reg. No. 100-1091

EPA Est. 100-LA-001

Product of United Kingdom
Formulated in the USA

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Manufactured for:
Syngenta Crop Protection, Inc.
P. O. Box 18300
Greensboro, North Carolina 27419-8300
www.syngenta-us.com

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 17 2011

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

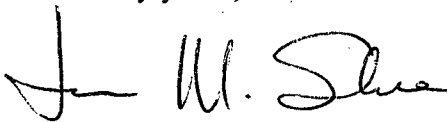
Tyler J. Koschnick
SePRO Corporation
11550 North Meridian St.
Suite 600
Carmel, Indiana 46032-4565

Dear Mr. Koschnick:

SUBJECT: Label Amendment
Sonar A.S.
EPA Registration No. 67690-4
Your Submission Dated March 18, 2011

The label amendment referred to above, submitted in accordance with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable. A stamped copy is enclosed for your records. Please submit one (1) copy of your final printed labeling before you release the product for shipment. This amended labeling supersedes all previously accepted ones.

Sincerely yours,

for 
Kathryn V. Montague
Product Manager (23)
Herbicide Branch
Registration Division (7505P)

Enclosure

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Sonar* AS 67690-4

[Base label for all containers]

ACCEPTED

JUN 17 2011

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

67690-4



Sonar* A.S.

AQUATIC HERBICIDE

Active Ingredient

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

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

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION. Harmful if swallowed, absorbed through skin, or 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.

FIRST AID	
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15 to 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 on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none"> • Call a 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 a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If inhaled	<ul style="list-style-type: none"> • 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.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or	

*Trademark of SePRO Corporation

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doctor, or going for treatment. In case of emergency endangering health or the environment involving this product, call **INFOTRAC** at **1-800-535-5053**.

ENVIRONMENTAL HAZARDS

Do not apply to water except as specified on the label. Do not contaminate water by disposal of equipment washwaters. 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. Trees and shrubs growing in water treated with Sonar A.S. herbicide may occasionally develop chlorosis. Follow use directions carefully so as to minimize adverse effects on non-target organisms.

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. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Refillable Container. Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

See attached booklet for complete container disposal directions including triple rinsing and pressure rinsing instructions.

Refer to inside of label booklet for additional precautionary information and directions for use.

Notice: Read the entire label before using. Use only according to label directions. **Before buying or using this product, read *Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies* inside label booklet.**

Shake well before using.

EPA Registration No. 67690-4
FPL031811

EPA Est. No. _____
SPC-_____

SePRO Corporation • 11550 N. Meridian Street, Suite 600 • Carmel, IN 46032, U.S.A.

Net contents _____
[Refillable/Nonrefillable container _____]

*Trademark of SePRO Corporation

[Front of label booklet or panel, ALL containers]



Sonar* A.S.

AQUATIC HERBICIDE

AN 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(1H)-pyridinone..... 41.7%

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

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION. Harmful if swallowed, absorbed through skin, or 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.

FIRST AID	
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15 to 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 on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none"> • Call a 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 a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance; then give

*Trademark of SePRO Corporation

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	artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
HOTLINE 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 endangering health or the environment involving this product, call INFOTRAC at 1-800-535-5053 .	

Refer to the inside of the label booklet for additional precautionary information and Directions for Use including Storage and Disposal.

NOTICE: Read the entire label before using. Use only according to label directions. Before buying or using this product, read *Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies* inside label booklet.

SHAKE WELL BEFORE USING.

EPA Registration No. 67690-4
FPL031811

EPA Est. No. _____
SPC- _____

SePRO Corporation • 11550 N. Meridian Street, Suite 600 • Carmel, IN 46032, U.S.A.

Herbicide

Net contents _____
[Refillable/Nonrefillable container _____]

[Label booklet text, ALL containers]

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION. Harmful if swallowed, absorbed through skin, or 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.

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

FIRST AID	
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after the first 5 minutes; then continue rinsing eye. • Call a poison control center for treatment advice.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none"> • Call a 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 a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If inhaled	<ul style="list-style-type: none"> • 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.
HOTLINE 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 endangering health or the environment involving this product, call INFOTRAC at 1-800-535-5053 .	

ENVIRONMENTAL HAZARDS

Do not apply to water except as specified on the label. Do not contaminate water by disposal of equipment washwaters. 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. Trees and shrubs growing in water treated with Sonar A.S. herbicide may occasionally develop chlorosis. Follow use directions carefully so as to minimize adverse effects on non-target organisms.

DIRECTIONS FOR USE

*Trademark of SePRO Corporation

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.

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. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Triple rinse containers small enough to shake (capacity ≤ 5 gallons) 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.

Triple rinse containers too large to shake (capacity >5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank, or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable Container. Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. Triple rinse as follows: To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with a pesticide product. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

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PRODUCT 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, including dry or de-watered areas of these sites. Sonar A.S. is absorbed from water by plant shoots and from hydrosol by the roots of aquatic vascular plants. For in-water treatments, it is important to maintain the specified 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 an application rate at the higher end of the specified rate range 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 a FastEST, for the incorporation of this analysis in your treatment program. Other proven chemical analyses for the active ingredient may also be used. The chemical analysis, a 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, reservoirs and static canals 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.

Product 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.

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• **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 ¼ mile (1,320 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 (1,320 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. Follow these precautions and inform those who irrigate from areas treated with Sonar A.S. of the irrigation time frames or water assay requirements presented in the table below. Follow the following time frames and assay directions 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.

Application Site	DAYS AFTER APPLICATION		
	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
Dry or De-watered Canals ^{†††}	0	0	^{†††}

[†] 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. When applying Sonar A.S. to exposed sediments of aquatic sites such as lakes and reservoirs, follow these time frames prior to using water for irrigation once sites are reflooded.

^{†††} When Sonar A.S. is applied to exposed sediments of dry or de-watered canals, allow canals to refill for a minimum of 24 hours before using water for irrigation.

Where the use of Sonar A.S. treated water is desired for irrigating crops prior to the time frames established above, the use of a FastEST assay is recommended to measure the concentration in the treated water. Where a FastEST has determined that the concentrations are less than 10 parts per billion, there are no irrigation precautions for

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

Vascular Aquatic Plants Controlled by Sonar A.S.:

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)

Emersed Plants:

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

Floating Plants:

- common duckweed (*Lemna minor*)

Shoreline Grasses:

- paragrass (*Urochloa mutica*)

Vascular Aquatic Plants Partially Controlled by Sonar A.S.:

Submersed Plants:

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

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*)

Floating Plants:

- common watermeal (*Wolffia columbiana*) †
- salvinia (*Salvinia* spp.)

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 Not Controlled by Sonar A.S.:

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*)

Floating Plants:

- waterlettuce (*Pistia stratiotes*)

Shoreline Grasses:

- maidencane (*Panicum hemitomom*)

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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 specified 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 Directions

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 the *Application Rate Calculation—Ponds, Lakes and Reservoirs* section of this label. Split or multiple applications may be used 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.

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	
	45 ppb	90 ppb	45 ppb	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

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Application to Lakes and Reservoirs

The following treatments may be used 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)

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 the *Application Rate Calculation—Ponds, Lakes, and Reservoirs* section of this label. Choose an application rate from the table below 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 section of this label entitled, *Split or Multiple Applications to Whole Lakes or Reservoirs*, 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	90 ppb	10 ppb	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

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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

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. a 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 4 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 a 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 ¼ 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. An application rate at the higher end of the specified rate range 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 a rate at the higher end of the rate range where greater dilution with untreated water is anticipated.

Treatment Areas Greater Than ¼ Mile from a Functioning Potable Water Intake

For single applications, apply Sonar A.S. at application rates from 30 to 150 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 a

FasTEST is recommended to maintain the desired concentration in the target area over time.

Treatment Areas within ¼ Mile of a Functioning Potable Water Intake

In treatment areas that are within ¼ 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, a 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:

$5 \times 25 \times 0.0027 = 0.33$ 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 may 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 Sediments of Dry or De-Watered Aquatic Sites

For application of Sonar A.S. to sediments of dry or de-watered aquatic sites, including exposed sediments of lakes or reservoirs, irrigation canals, non-irrigation canals and drainage canals, apply a maximum of 2 quarts of Sonar A.S. per surface acre per annual growth cycle. Apply Sonar A.S. evenly to the sediment surface, but not above the high water line, with a minimum spray solution of 30 to 100 gallons per surface acre. High levels of organic matter in treated-sediments may reduce efficacy. Sonar A.S. may be applied with other aquatic herbicides labeled for this use. Please contact your SePRO Aquatic Specialist for further use recommendations.

Application to Drainage Canals and Irrigation Canals

Static Canals:

In static drainage and irrigation canals, apply Sonar A.S. at the rate of 30 to 150 ppb per treated surface acre. The maximum application rate or sum of all application rates cannot exceed 150 ppb per annual growth cycle.

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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 a 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 ¼ mile from a functioning potable water intake. Applications less than 20 ppb may be applied within ¼ mile from a functioning potable water intake; however, if applications of Sonar A.S. are made within ¼ mile of a functioning potable water intake, a 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

TERMS AND CONDITIONS OF USE

If terms of the following *Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies* are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. Otherwise, to the extent consistent with applicable law, use by the buyer or any other user constitutes acceptance of the terms under *Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies*.

WARRANTY DISCLAIMER

SePRO Corporation warrants that the 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. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, 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. To the extent consistent with applicable law, all such risks shall be assumed by buyer.

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LIMITATION OF REMEDIES

To the extent consistent with applicable law, 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 user for product bought, or
- (2) Replacement of amount of product used.

To the extent consistent with applicable law, 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 losses or damages in writing. In no case shall SePRO Corporation be liable for consequential or incidental damages or losses.

The terms of the *Warranty Disclaimer*, *Inherent Risks of Use* 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.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

8 JUN 2008

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Ms. Amy Dugger-Ronyak
SePRO Corporation
11550 N. Meridian Street, Suite 600
Carmel, IN 46032-4565

Subject: Fluridone SRP
EPA Registration Number 67690-32
Submission dated April 14, 2008
Response to Agency email dated March 27, 2008

Dear Ms. Dugger-Ronyak:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act as amended is acceptable, provided you make the following changes before you release the product for shipment.

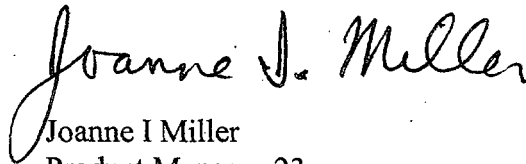
- 1) Add an appropriate EPA Establishment Number to the label
- 2) Add appropriate Net Contents information to the label
- 3) On page 6, revise the statement "Application to mature target plants may require higher application rates and may take longer to control" to "Application to mature target plants may require an application rate at the higher end of the specified rate range and may take longer to control"
- 4) On page 7, in the subsection Irrigation, revise "SePRO Corporation recommends following these precautions and informing....." to "Follow these precautions and inform those who irrigate.... Also revise "These time frames and assay recommendations are suggestions which should be followed to reduce the potential for injury..." To "Follow the following time frames and assay directions to reduce the potential for injury..."
- 5) On page 7, remove RECOMMENDED from the table heading.
- 6) On page 7, revise "the use of a ELISA or other appropriate means of analysis is recommended to measure the concentration in the treated water" to "use a ELISA or other appropriate means of analysis to measure the concentration in the treated water"
- 7) On page 8, revise "Please consult an aquatic specialist for recommended Fluridone SRP use rates when selective control of exotic species is desired" to "Please consult an aquatic specialist for recommended Fluridone SRP use rates (not to exceed maximum labeled rates) when selective control of exotic species is desired"
- 8) On page 10, revise "Split or multiple applications are recommended where dilution...." to "Split or multiple applications may be used where dilution...."

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- 9) On page 10, revise "The following treatments are recommended for treating both whole lakes..." to "The following treatments may be used for treating both whole lakes..."
- 10) On page 10, revise "Choose an application rate to meet the aquatic plant management objective" to "Choose an application rate from the following table to meet the aquatic plant management objective"
- 11) On page 12, revise "Higher application rates may be required and frequency of applications....." to "An application rate at the higher end of the specified rate range may be required and frequency of applications....."
- 12) On page 12, revise "Use higher rates where greater dilution with untreated water is anticipated" to "Use a rate at the higher end of the rate range where greater dilution with untreated water is anticipated"
- 13) On page 12, revise "Calculated rates should not exceed the maximum allowable rate in pounds per" to "Calculated rates may not exceed the maximum allowable rate in pounds per"
- 14) On page 13, revise "In static drainage and irrigation canals, Fluridone SRP should be applied at the rate of 20 to 40 pounds per surface acre" to "In static drainage and irrigation canals, apply Fluridone SRP at the rate of 20 to 40 pounds per surface acre"

Submit one (1) copy of final printed labeling incorporating the above changes before you release the product for shipment. Amended labeling will supercede all previously accepted ones. A stamped copy of labeling is enclosed for your records. If you have any questions, please contact Hope Johnson at 703-305-5410.

Sincerely,



Joanne I Miller
Product Manager 23
Herbicide Branch
Registration Division (7505P)

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(Base label for Nonrefillable, Rigid containers 5 gal or less)

ACCEPTED
with **COMMENTS**
In EPA Letter Dated:

6 JUN 2008

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

67690-32



Fluridone SRP
AQUATIC HERBICIDE

AN HERBICIDE FOR MANAGEMENT OF AQUATIC VEGETATION IN FRESH WATER PONDS, LAKES, RESERVOIRS, POTABLE WATER SOURCES, DRAINAGE CANALS, IRRIGATION CANALS AND RIVERS.

Active Ingredient

fluridone: 1-methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-4(1*H*)-pyridinone 5.0%

Other Ingredients 95.0%

TOTAL 100.0%

Contains 2 pounds of fluridone per 40-pound container.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

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

Harmful if Swallowed, Absorbed Through Skin or Inhaled. Avoid breathing dust. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

FIRST AID	
If in eyes	<ul style="list-style-type: none"> • 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 on skin or clothing	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Call a 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 a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If inhaled	<ul style="list-style-type: none"> • 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. For medical emergencies involving this product, call 1-800-535-5053.

ENVIRONMENTAL HAZARDS

Follow use directions carefully so as to minimize adverse effects on non-target organisms. Do not contaminate untreated water when disposing of equipment washwaters. Trees and shrubs growing in water treated with Fluridone SRP 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 spill, contain material 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.

Nonrefillable Container Disposal (rigid, 5 gallons or less): 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 $\frac{1}{4}$ 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 the procedure two more times.

Refer to the label booklet for the Directions for Use.

NOTICE: Read the entire label before using. Use only according to label directions. Before buying or using this product, read *Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies* inside label booklet.

For additional information on our products, please visit www.sepro.com.

EPA Reg. No. 67690-32
FPL040908

EPA Est. No. _____
SPC - _____

SePRO Corporation • 11550 N. Meridian Street, Suite 600 • Carmel, IN 46032, U.S.A.

Aquatic Herbicide

Net contents _____

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(Front of label booklet)



Fluridone SRP

AQUATIC HERBICIDE

AN HERBICIDE FOR MANAGEMENT OF AQUATIC VEGETATION IN FRESH WATER PONDS, LAKES, RESERVOIRS, POTABLE WATER SOURCES, DRAINAGE CANALS, IRRIGATION CANALS AND RIVERS.

Active Ingredient

fluridone: 1-methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-4(1H)-pyridinone 5.0%

Other Ingredients..... 95.0%

TOTAL..... 100.0%

Contains 2 pounds of fluridone per 40-pound container.

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

Refer to inside of label booklet for additional precautionary information and Directions for Use including Storage and Disposal.

NOTICE: Read the entire label before using. Use only according to label directions. **Before buying or using this product, read *Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies* inside label booklet.**

For additional information on our products, please visit www.sepro.com.

EPA Reg. No. 67690-32
FPL040908

EPA Est. No. _____
SPC - _____

SePRO Corporation • 11550 N. Meridian Street, Suite 600 • Carmel, IN 46032, U.S.A.

Aquatic Herbicide

Net contents _____

*(Label booklet text)***PRECAUTIONARY STATEMENTS****HAZARDS TO HUMANS AND DOMESTIC ANIMALS****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 the label, find someone to explain it to you in detail).

Harmful if Swallowed, Absorbed Through Skin or Inhaled. Avoid breathing dust. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

FIRST AID	
If in eyes	<ul style="list-style-type: none"> • 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 on skin or clothing	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Call a 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 a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If inhaled	<ul style="list-style-type: none"> • 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.
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For medical emergencies involving this product, call 1-800-535-5053.</p>	

ENVIRONMENTAL HAZARDS

Follow use directions carefully so as to minimize adverse effects on non-target organisms. Do not contaminate untreated water when disposing of equipment washwaters. Trees and shrubs growing in water treated with Fluridone SRP 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.

GENERAL INSTRUCTIONS

Fluridone SRP is a selective systemic aquatic herbicide for management of aquatic vegetation in fresh water ponds, lakes, reservoirs, drainage canals, irrigation canals and rivers. Fluridone SRP is a pelleted formulation containing 5 percent fluridone. Fluridone SRP is absorbed from water by plant shoots and from hydrosol by the roots of aquatic vascular plants. It is important to maintain Fluridone SRP in contact with the target plants for as long as possible. Rapid water movement or any condition which results in rapid dilution of Fluridone SRP in treated water will reduce its effectiveness.

In susceptible plants, Fluridone SRP inhibits the formation of carotene. In the absence of carotene, chlorophyll is rapidly degraded by sunlight. Herbicidal symptoms of Fluridone SRP 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 weed management is achieved with Fluridone SRP. Species susceptibility to Fluridone SRP may vary, depending on time of year, stage of growth, and water movement. For best results, apply Fluridone SRP prior to initiation of weed growth or when weeds begin active growth. Application to mature target plants may require higher application rates, and mature plants may take longer to control.

Fluridone SRP 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 water. Contact SePRO Corporation for the utilization of this test and for the incorporation of this analysis into your treatment program.

Application rates are provided in pounds of Fluridone SRP 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.

SPECIAL PRECAUTIONS

- **Obtain required permits:** Permits may be required by state or local agencies. Consult with appropriate State or local water authorities before applying this product.
- **New York State:** Application of Fluridone SRP is not permitted in waters less than two (w) feet deep.
- **Hydroponic Farming:** Do not use water treated with Fluridone SRP for hydroponic farming.
- **Greenhouse and Nursery Plants:** Do not use water treated with Fluridone SRP for irrigating greenhouse or nursery plants unless use of an approved assay confirms that residues are less than 1 ppb.
- **Water Use Restrictions Following Applications of Fluridone SRP (Days)**

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Application Rate	Drinking ¹	Fishing	Swimming	Livestock/Pet Consumption	Irrigation ²
Maximum Rate (150 ppb) or less	0	0	0	0	See irrigation instructions below

¹ Note below, under *Potable Water Intakes*, the information for application of Fluridone SRP within ¼ mile (1,320 feet) of a functional potable water intake.

² Note below, under *Irrigation*, specific time frames or fluridone residues that provide the widest margin of safety for irrigating with water treated with Fluridone SRP.

- Potable Water Intakes:** Concentrations of the active ingredient, fluridone, up to 150 ppb are allowed in potable water sources; however, in lakes and reservoirs or other sources of potable water, DO NOT apply Fluridone SRP at application rates greater than 20 ppb within one-fourth (¼) mile (1,320 feet) of any functioning potable water intake. At application rates of 8 to 20 ppb, Fluridone SRP may be applied where functioning potable water intakes are present. **NOTE: Existing potable water intakes that are no longer in use, such as those that have been replaced by potable water wells or connections to a municipal water system, are not considered to be functioning potable water intakes.**
- Irrigation:** Irrigation with water treated with Fluridone SRP may result in injury to the irrigated vegetation. Those who irrigate from areas treated with Fluridone SRP should be informed of the irrigation time frames or water assay requirements presented in the table below. These time frames and assay recommendations are suggestions that should be followed to reduce the potential for injury to vegetation irrigated with water treated with Fluridone SRP. There is a greater potential for crop injury when water treated with Fluridone SRP is applied to crops grown in low organic and sandy soils.

RECOMMENDED WAITING PERIODS BEFORE IRRIGATING WITH WATER TREATED WITH FLURIDONE SRP			
Application Site	Days After Application		
	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 ¹	7	30	Assay required
Canals	7	7	Assay required
Rivers	7	7	Assay required
Lakes and Reservoirs ²	7	7	Assay required

¹ For purposes of Fluridone SRP 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.

² 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 Fluridone SRP treated water is desired for irrigating crops prior to the time frames established above, the use of ELISA or other appropriate means of analysis is recommended to measure the concentration in the treated water.

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Where ELISA testing has determined that concentrations are less than 10 parts per billion (ppb), 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 for newly seeded crops or newly seeded grasses, such as overseeded golf course greens, do not use Fluridone SRP treated water if concentrations are greater than 5 parts per billion. Furthermore, when rotating crops, do not plant members of the Solanaceae 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.

WEED CONTROL INFORMATION

Fluridone SRP 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 application 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 Fluridone SRP. Consult an aquatic specialist prior to application to determine a plant's susceptibility to Fluridone SRP.

Vascular Aquatic Plants Controlled by Fluridone SRP:¹

Submersed Plants:

Bladderwort (*Utricularia* spp.)
 Coontail, Common (*Ceratophyllum demersum*)[†]
 Elodea, Common (*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*)

¹ Species denoted by an dagger (†) are native plants that are often tolerant to fluridone at lower use rates. Please consult an aquatic specialist for recommended Fluridone SRP use rates when selective control of exotic species is desired.

Vascular Aquatic Plants Partially Controlled by Fluridone SRP:

Floating Plants:

Salvinia (*Salvinia* spp.)

Emersed Plants:

Alligatorweed (*Alternanthera philoxeroides*)
 Cattail (*Typha* spp.)
 Lotus, American (*Nelumbo lutea*)
 Parrotfeather (*Myriophyllum aquaticum*)

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Smartweed (*Polygonum* spp.)
 Spatterdock (*Nuphar luteum*)
 Spikerush (*Eleocharis* spp.)
 Waterlily (*Nymphaea* spp.)
 Waterprimrose, Creeping (*Ludwigia peploides*)
 Waterpurslane (*Ludwigia palustris*)
 Watershield (*Brasenia schreberi*)

Submersed Plants:

Limnophila (*Limnophila sessiliflora*)
 Pondweed, Illinois (*Potamogeton illinoensis*)
 Tapegrass; American Eelgrass (*Vallisneria americana*)
 Watermilfoil, Variable-Leaf (*Myriophyllum heterophyllum*)

Shoreline Grasses:

Barnyardgrass (*Echinochloa crusgalli*)
 Canarygrass, Reed (*Phalaris arundinaceae*)
 Cutgrass, Giant (*Zizaniopsis miliacea*)
 Torpedograss (*Panicum repens*)
 Watergrass, Southern (*Hydrochloa caroliniensis*)

Vascular Aquatic Plants Not Controlled by Fluridone SRP:**Floating Plants:**

Waterhyacinth, Floating (*Eichornia crassipes*)
 Water Lettuce (*Pistia stratiotes*)

Emerald Plants:

Arrowhead (*Sagittaria* spp.)
 Bacopa (*Bacopa* spp.)
 Big Floatingheart; Banana Lily (*Nymphoides aquatica*)
 Bulrush (*Scirpus* spp.)
 Frogbit, American (*Limnobium spongia*)
 Pickerelweed; Lanceleaf (*Pontederia* spp.)
 Rush (*Juncus* spp.)
 Water Pennywort (*Hydrocotyle* spp.)

Shoreline Grasses:

Maidencane (*Panicum hemitomon*)

NOTE: Algae (*Chara*, *Nitella* and filamentous species) are not controlled by Fluridone SRP.

APPLICATION DIRECTIONS

The aquatic plants present in the treatment site should be identified prior to application to determine their susceptibility to Fluridone SRP. It is also 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.

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Application to Ponds

Fluridone SRP may be applied to the entire surface area of a pond. For single applications, rates may be selected to provide 45 to 90 ppb in the treated water, although actual concentrations in treated water may be substantially lower at any point in time due to the slow-release formulation of this product. When treating for optimum selective control, lower rates may be applied for sensitive target species. 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 of less than 4 feet. Application rates necessary to obtain these concentrations in treated water are shown in the following table. For additional application rate calculations, refer to the section of this label entitled *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 should total 45 to 90 ppb and must not exceed a total of 90 ppb per annual growth cycle.

Average Water Depth of Treatment Site (feet)	Pounds of Fluridone SRP per Treated Surface Acre	
	45 ppb	to 90 ppb
1	2.5	5.0
2	5.0	10.0
3	7.5	15.0
4	10.0	20.0
5	12.5	25.0
6	15.0	30.0
7	17.0	34.0
8	19.5	39.0
9	22.0	44.0
10	24.5	49.0

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, Fluridone SRP 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.

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

Single Application to Whole Lakes or Reservoirs: Where single applications to whole lakes or reservoirs are desired, apply Fluridone SRP at an application rate of 16 to 90 ppb. Application rates necessary to obtain these concentrations in treated water are shown in the following table. For additional application rate calculations, refer to the section of this label entitled *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

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when controlling Eurasian watermilfoil and curlyleaf pondweed, choose an application rate lower in the rate range. For other plant species, an aquatic specialist should be contacted to determine 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, *Split or Multiple Applications to Whole Lakes or Reservoirs*, for guidelines and maximum rate allowed.

Average Water Depth of Treatment Site (feet)	Pounds of Fluridone SRP per Treated Surface Acre	
	16 ppb	to 90 ppb
1	0.9	5.0
2	1.7	10.0
3	2.6	15.0
4	3.5	20.0
5	4.3	25.0
6	5.2	30.0
7	6.0	34.0
8	6.9	39.0
9	7.8	44.0
10	8.6	49.0
11	9.5	54.0
12	10.4	59.0
13	11.2	64.0
14	12.1	68.0
15	13.0	73.0
16	13.8	78.0
17	14.7	83.0
18	15.6	88.0
19	16.4	93.0
20	17.3	98.0

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 to maintain this lower dose for sufficient time to ensure efficacy and enhance selectivity. In these situations, use the lower rates (16 to 75 ppb) within the rate range. 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, an aquatic specialist should be contacted to determine when to choose application rates lower in the rate range to meet specific plant management goals. For split or repeated applications, the sum of all applications must not exceed 150 ppb per annual growth cycle.

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Note: In treating lakes or reservoirs that contain potable water intakes and the application requires treating within ¼ 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.

➤ **Partial Lake or Reservoir Treatments**

Where dilution of Fluridone SRP 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 with the target plants. The application rate and use frequency of Fluridone SRP 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 for untreated water to dilute the Fluridone SRP concentration in the treatment area. Use higher rates where greater dilution with untreated water is anticipated.

Application Sites Greater than ¼ Mile from a Functioning Potable Water Intake:

For single applications, apply Fluridone SRP at application rates from 45 to 150 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 ELISA or other appropriate means of analysis is recommended to maintain the desired concentration in the target area over time.

Application Sites Within ¼ Mile of a Functioning Potable Water Intake:

In treatment areas that are within ¼ mile of a potable water intake, no single application can exceed 20 ppb. When utilizing split or repeated applications of Fluridone SRP for sites which contain a potable water intake, ELISA or other appropriate means of analysis 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 Fluridone SRP to be applied to provide the desired ppb concentration of active ingredient equivalents in treated water may be calculated as follows:

Pounds of Fluridone SRP required per treated surface acre = Average water depth of treatment site (feet) x Desired ppb concentration of active ingredient equivalents x 0.054

For example, the pounds per acre of Fluridone SRP required to provide a concentration of 25 ppb of active ingredient equivalents in water with an average depth of 5 feet is calculated as follows:

$$5 \times 25 \times 0.054 = 6.75 \text{ pounds per treated surface acre.}$$

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

Application to Drainage Canals, Irrigation Canals and Rivers

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Static Canals: In static drainage and irrigation canals, Fluridone SRP should be applied at the rate of 20 to 40 pounds per surface acre.

Moving Water Canals and Rivers: The performance of Fluridone SRP will be enhanced by restricting or reducing water flow. In slow moving bodies of water, use an application technique that maintains a concentration of 10 to 40 ppb in the target area for a minimum of 45 days. Fluridone SRP 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 ELISA or other appropriate means of analysis is recommended to maintain the desired concentration in the target area over time.

Static or Moving Canals or Rivers Containing a Functioning Potable Water Intake: In treating a static or moving water canal or river which contains a functioning potable water intake, applications of Fluridone SRP greater than 20 ppb must be made more than ¼ mile from a functioning potable water intake. Applications of less than 20 ppb may be applied within ¼ mile from a functioning potable water intake; however, if applications of Fluridone SRP are made within ¼ mile from a functioning potable water intake, the ELISA or other appropriate means of analysis must be utilized to demonstrate that concentrations do not exceed 150 ppb at the potable water intake.

Application Rate Calculation – Drainage Canals, Irrigation Canals and Rivers

The amount of Fluridone SRP 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 width (feet) x Average depth (feet) x 0.9 = Cubic feet per second (CFS)
2. CFS x 1.98 = acre-feet per day (water movement)
3. Acre-feet per day x desired ppb x 0.054 = Pounds of Fluridone SRP required per day

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 spill, contain material 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.

Nonrefillable Container Disposal (rigid, 5 gallons or less): 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 the procedure two more times.

15/15

WARRANTY DISCLAIMER

SePRO Corporation warrants that the 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 as the seller. To the extent consistent with applicable law, all such risks shall be assumed by buyer.

LIMITATION OF REMEDIES

To the extent consistent with applicable law, 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 user for product bought, or
- (2) Replacement of amount of product used.

To the extent consistent with applicable law, 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 losses or damages 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 *Limitations of Remedies* in any manner.

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Appendix E. Product MSDS

Material Safety Data Sheet



Sonar SRP Aquatic Herbicide

1. Product and company identification

Product name	: Sonar SRP Aquatic Herbicide
EPA Registration Number	: 67690-3
Material uses	: Aquatic plant herbicide.
Supplier/Manufacturer	: SePRO Corporation 11550 North Meridian Street Suite 600 Carmel, IN 46032 U.S.A. Tel: 317-580-8282 Toll free: 1-800-419-7779 Fax: 317-428-4577 Monday - Friday, 8am to 5pm E.S.T. www.sepro.com
Responsible name	: Atrion Regulatory Services, Inc.
In case of emergency	: INFOTRAC - 24-hour service 1-800-535-5053

2. Hazards identification

Physical state	: Solid. [Pellets.]
Odor	: Faint earthy/musty.
OSHA/HCS status	: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.
Emergency overview	: NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED. No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing.
Routes of entry	: Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects	
Inhalation	: Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	: No known significant effects or critical hazards.
Skin	: No known significant effects or critical hazards.
Eyes	: No known significant effects or critical hazards.
Potential chronic health effects	
Chronic effects	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.
Over-exposure signs/symptoms	
Inhalation	: No specific data.
Ingestion	: No specific data.
Skin	: No specific data.
Eyes	: No specific data.
Medical conditions aggravated by over-exposure	: None known.

See toxicological information (section 11)

3. Composition/information on ingredients

United States

Name	CAS number	%
4(1h)-pyridinone, 1-methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-	59756-60-4	5 - 10

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

Eye contact	: Check for and remove any contact lenses. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.
Skin contact	: Wash with soap and water. Get medical attention if symptoms occur.
Inhalation	: If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms appear.
Ingestion	: Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
Protection of first-aiders	: No action shall be taken involving any personal risk or without suitable training.
Notes to physician	: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Fire-fighting measures

Flammability of the product	: Non-flammable.
Extinguishing media	
Suitable	: Use an extinguishing agent suitable for the surrounding fire.
Not suitable	: None known.
Hazardous thermal decomposition products	: Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds
Special protective equipment for fire-fighters	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures


Personal precautions	: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
Environmental precautions	: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Methods for cleaning up	
Small spill	: Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
Large spill	: Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. **Applicators should refer to the product label for personal protective clothing and equipment.**
- Engineering measures** : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Eyes** : Safety glasses.
 - Skin** : Lab coat.
 - Respiratory** : A respirator is not needed under normal and intended conditions of product use.
 - Hands** : Disposable vinyl gloves.
- Personal protective equipment (Pictograms)** : 
- HMIS Code/Personal protective equipment** : A
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

- Physical state** : Solid. [Pellets.]
- Color** : Brown to gray. [Dark]
- Odor** : Faint earthy/musty.
- pH** : 4.45 [Conc. (% w/w): 50%]
- Relative density** : 40 to 84 lbs/cu. Ft. (20C), depending on carrier.
- Solubility** : Insoluble; pellets disintegrates in water.

10 . Stability and reactivity

Stability	: The product is stable.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid	: No specific data.
Materials to avoid	: Reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Species	Dose	Result	Exposure
4(1h)-pyridinone, 1-methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]- Sonar SRP Aquatic Herbicide	Rat	>10 g/kg	LD50 Oral	-
	Rabbit	>2000 mg/kg	LD50 Dermal	-
	Rat	>5000 mg/kg	LD50 Oral	-

Inhalation	: Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	: No known significant effects or critical hazards.
Skin	: No known significant effects or critical hazards.
Eyes	: No known significant effects or critical hazards.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Test	Species	Exposure	Result
4(1h)-pyridinone, 1-methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-	-	Daphnia	48 hours	Acute EC50 3.9 mg/L
	-	Daphnia	48 hours	Acute EC50 3.6 mg/L
	-	Fish	96 hours	Acute LC50 4.5 mg/L
	-	Fish	96 hours	Acute LC50 4.25 mg/L
	-	Fish	96 hours	Acute LC50 4.2 mg/L

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

AERG : Not applicable.

Regulatory information

DOT/ IMDG/ IATA : Not regulated.

15 . Regulatory information

United States

- HCS Classification** : Not regulated.
- U.S. Federal regulations** : **United States inventory (TSCA 8b)**: All components are listed or exempted.
SARA 302/304/311/312 extremely hazardous substances : No products were found.
SARA 302/304 emergency planning and notification : No products were found.
SARA 302/304/311/312 hazardous chemicals : No products were found.
SARA 311/312 MSDS distribution - chemical inventory - hazard identification : No products were found.
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 accidental release prevention : No products were found.
Clean Air Act (CAA) 112 regulated flammable substances : No products were found.
Clean Air Act (CAA) 112 regulated toxic substances : No products were found.

- State regulations** : **Connecticut Carcinogen Reporting** : None of the components are listed.
Connecticut Hazardous Material Survey : None of the components are listed.
Florida substances : None of the components are listed.
Illinois Chemical Safety Act: None of the components are listed.
Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.
Louisiana Reporting: None of the components are listed.
Louisiana Spill: None of the components are listed.
Massachusetts Spill: None of the components are listed.
Massachusetts Substances : None of the components are listed.
Michigan Critical Material: None of the components are listed.
Minnesota Hazardous Substances : None of the components are listed.
New Jersey Hazardous Substances : None of the components are listed.
New Jersey Spill: None of the components are listed.
New Jersey Toxic Catastrophe Prevention Act : None of the components are listed.
New York Acutely Hazardous Substances : None of the components are listed.
New York Toxic Chemical Release Reporting : None of the components are listed.
Pennsylvania RTK Hazardous Substances : None of the components are listed.
Rhode Island Hazardous Substances : None of the components are listed.

California Prop. 65 : No products were found.

United States inventory (TSCA 8b) : **United States inventory (TSCA 8b)**: All components are listed or exempted.

International regulations

International lists : This product, (and its ingredients) is (are) listed on national inventories, or is (are) exempted from being listed, in Australia (AICS), in Europe (EINECS/ELINCS), in Korea (TCCL), in Japan (METI), in the Philippines (RA6969).

16 . Other information

Label requirements : **NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.**

Hazardous Material Information System (U.S.A.) :

Health	0
Fire hazard	0
Physical Hazard	0
Personal protection	A

HAZARD RATINGS

- 4- Extreme
- 3- Serious
- 2- Moderate
- 1- Slight
- 0- Minimal

See section 8 for more detailed information on personal protection.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



References : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG.

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Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. The data in this MSDS relates only to the specific material designated herein. Possible adverse effects (see Section 2, 11 and 12) may occur if this material is not handled in the recommended manner.

Material Safety Data Sheet



Sonar A.S.

1 . Product and company identification

Product name	: Sonar A.S.
EPA Registration Number	: 67690-4
Material uses	: Herbicide.
Supplier/Manufacturer	: SePRO Corporation 11550 North Meridian Street Suite 600 Carmel, IN 46032 U.S.A. Tel: 317-580-8282 Toll free: 1-800-419-7779 Fax: 317-428-4577 Monday - Friday, 8am to 5pm E.S.T. www.sepro.com
Responsible name	: Atrion Regulatory Services, Inc.
In case of emergency	: INFOTRAC - 24-hour service 1-800-535-5053

2 . Hazards identification

Physical state	: Liquid. [Opaque.]
Odor	: Faint sweetness.
OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview	: WARNING! MAY CAUSE ALLERGIC SKIN REACTION. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE EYE AND SKIN IRRITATION. May be harmful if swallowed. Slightly irritating to the eyes and skin. May cause sensitization by skin contact. Do not breathe vapor or mist. Do not ingest. Do not get on skin or clothing. Avoid contact with eyes. Wash thoroughly after handling.
Routes of entry	: Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects	
Inhalation	: Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	: May be harmful if swallowed.
Skin	: Slightly irritating to the skin. May cause sensitization by skin contact.
Eyes	: Slightly irritating to the eyes.
Potential chronic health effects	
Chronic effects	: Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.
Over-exposure signs/symptoms	
Inhalation	: No specific data.
Ingestion	: No specific data.
Skin	: Adverse symptoms may include the following: irritation redness
Eyes	: Adverse symptoms may include the following: irritation watering redness

Medical conditions aggravated by over-exposure : Pre-existing skin disorders may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3. Composition/information on ingredients

United States		
Name	CAS number	%
Active ingredient:		
4(1h)-pyridinone, 1-methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-	59756-60-4	41.7
Inert ingredient:		
Proprietary Alcohol	Proprietary	5 - 10
Proprietary Alcohol 2	Proprietary	1 - 5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

- Eye contact** : Check for and remove any contact lenses. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.
- Skin contact** : Wash with soap and water. Get medical attention if symptoms occur.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms appear.
- Ingestion** : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5. Fire-fighting measures

- Flammability of the product** : May be combustible at high temperature.
- Extinguishing media**
- Suitable** : In case of fire, use water spray (fog), foam, dry chemical or CO₂.
- Not suitable** : None known.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
halogenated compounds
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up**
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7. Handling and storage

Handling : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Avoid freezing. Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

United States	
Product name	Exposure limits
Proprietary Alcohol	AIHA WEEL (United States, 1/2008). TWA: 10 mg/m ³ 8 hour(s).

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Applicators should refer to the product label for personal protective clothing and equipment.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Eyes : Safety glasses.

Skin : Lab coat.

Respiratory : A respirator is not needed under normal and intended conditions of product use.

Hands : Nitrile gloves.

Personal protective equipment (Pictograms) :



HMIS Code/Personal protective equipment : B

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Liquid. [Opaque.]
Color : Off-white to tannish-gray.
Odor : Faint sweetness.
Flash point : Closed cup: >93.333°C (>200°F)
pH : 5.6 to 7.6
Boiling/condensation point : 100°C (212°F)
Relative density : 1.15
Vapor pressure : 0.31 kPa (2.3 mm Hg)
Solubility : Partially soluble in the following materials: cold water and hot water.

10 . Stability and reactivity

Stability : The product is stable.
Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions to avoid : Avoid freezing.
Materials to avoid : Reactive or incompatible with the following materials: oxidizing materials and acids.
Hazardous decomposition products : If water evaporates, residues may product harmful vapors under fire conditions.

Slightly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.

Non-flammable in the presence of the following materials or conditions: heat.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Species	Dose	Result	Exposure
4(1h)-pyridinone, 1-methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-	Rat	>10 g/kg	LD50 Oral	-
Proprietary Alcohol	Rabbit	20800 mg/kg	LD50 Dermal	-
	Rat	20 g/kg	LD50 Oral	-
Sonar A.S.	Rabbit	>2000 mg/kg	LD50 Dermal	-
	Rat	>500 mg/kg	LD50 Oral	-

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion : May be harmful if swallowed.

Skin : Slightly irritating to the skin. May cause sensitization by skin contact.

Eyes : Slightly irritating to the eyes.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Product/ingredient name	Test	Species	Exposure	Result
Proprietary Alcohol	-	Daphnia	48 hours	Acute EC50 >10000000 ug/L
	-	Fish	96 hours	Acute LC50 710000 ug/L
	-	Daphnia	48 hours	Acute LC50 4919 mg/L
	-	Fish	96 hours	Chronic NOEC 600000 ug/L
	-	Daphnia	48 hours	Chronic NOEC 660000 ug/L

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

AERG : Not applicable.

Regulatory information

DOT/IMDG/ IATA : Not regulated.

15 . Regulatory information

United States

HCS Classification : Sensitizing material

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.

SARA 302/304/311/312 extremely hazardous substances : No products were found.

SARA 302/304 emergency planning and notification : No products were found.

SARA 302/304/311/312 hazardous chemicals : Proprietary Alcohol

SARA 311/312 MSDS distribution - chemical inventory - hazard identification :

Proprietary Alcohol: Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean Air Act (CAA) 112 accidental release prevention : No products were found.

Clean Air Act (CAA) 112 regulated flammable substances : No products were found.

Clean Air Act (CAA) 112 regulated toxic substances : No products were found.

State regulations

: **Connecticut Carcinogen Reporting**: None of the components are listed.

Connecticut Hazardous Material Survey: None of the components are listed.

Florida substances: None of the components are listed.

Illinois Chemical Safety Act: None of the components are listed.

Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.

Louisiana Reporting: None of the components are listed.

Louisiana Spill: None of the components are listed.

Massachusetts Spill: None of the components are listed.

Massachusetts Substances: None of the components are listed.

Michigan Critical Material: None of the components are listed.

Minnesota Hazardous Substances: None of the components are listed.

New Jersey Hazardous Substances: None of the components are listed.

New Jersey Spill: None of the components are listed.

New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.

New York Acutely Hazardous Substances: None of the components are listed.

New York Toxic Chemical Release Reporting: None of the components are listed.

Pennsylvania RTK Hazardous Substances: The following components are listed:

Proprietary Alcohol

Rhode Island Hazardous Substances: None of the components are listed.

California Prop. 65

No products were found.

United States inventory (TSCA 8b)

: All components are listed or exempted.

International regulations

International lists

: This product, (and its ingredients) is (are) listed on national inventories, or is (are) exempted from being listed, in Australia (AICS), in Europe (EINECS/ELINCS), in Korea (TCCL), in Japan (METI), in the Philippines (RA6969).

16 . Other information

Label requirements : **MAY CAUSE ALLERGIC SKIN REACTION. MAY BE HARMFUL IF SWALLOWED. MAY CAUSE EYE AND SKIN IRRITATION.**

Hazardous Material Information System (U.S.A.) :

Health	1
Fire hazard	1
Physical Hazard	0
Personal protection	B

HAZARD RATINGS

4- Extreme
 3- Serious
 2- Moderate
 1- Slight
 0- Minimal
 See section 8 for more detailed information on personal protection.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.) :



References : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG.

Date of issue : 01/15/2009
Version : 1

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. The data in this MSDS relates only to the specific material designated herein. Possible adverse effects (see Section 2, 11 and 12) may occur if this material is not handled in the recommended manner.



HYDROTHOL (R) 191 Granular Aquatic Algicide and Herbicide

Material Safety Data Sheet

Cerexagri-Nisso LLC

1 PRODUCT AND COMPANY IDENTIFICATION

Pre-Harvest Division

Cerexagri-Nisso LLC
630 Freedom Business Center, Suite 402
King of Prussia, PA 19406

EMERGENCY PHONE NUMBERS:

Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887
Medical: Rocky Mountain Poison Control Center
(866) 767-5089 (24Hrs)

Information Telephone Numbers	Phone Number	Available Hrs
R&D Technical Service	610-878-6100	8:00am to 5:00pm EST
Customer Service	1-800-438-6071	8:00am - 5:00 pm EST

Product Name HYDROTHOL (R) 191 Granular Aquatic Algicide and Herbicide
Product Synonym(s)

Chemical Family Dicarboxylic Acid- Monoamine Salt
Chemical Formula C22H41NO5 (average)
Chemical Name Endothall Mono (N, N-Dimethylalkylamine) Salt
EPA Reg Num 4581-172-82695
Product Use Algicide and aquatic weed killer.

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS RegistryNumber	Typical Wt. %	OSHA
Mono(N,N-dimethylalkylamine) salt of endothall	66330-88-9	11	Y

The substance(s) marked with a "Y" in the OSHA column, are identified as hazardous chemicals according to the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

3 HAZARDS IDENTIFICATION

Emergency Overview

Grey to brown granular solid, damp must odor
KEEP OUT OF REACH OF CHILDREN.

DANGER!

Causes irreversible eye damage
HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN.
CAUSES SKIN IRRITATION.
Avoid contact with eyes, skin and clothing.

Potential Health Effects

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Based on single exposure animal tests, it is considered to be slightly toxic if swallowed, practically non-toxic if absorbed through skin or inhaled and severely irritating to eyes and skin.



Cerexagri-Nisso LLC

HYDROTHOL (R) 191 Granular Aquatic Algicide and Herbicide

Material Safety Data Sheet

Cerexagri-Nisso LLC

4 FIRST AID MEASURES

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 ON SKIN, immediately wash with cool/cold water. If irritation develops, immediately obtain medical attention.

IF SWALLOWED,

- Call a 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 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.

5 FIRE FIGHTING MEASURES

Fire and Explosive Properties

Auto-Ignition Temperature	N/A	
Flash Point	N/A	Flash Point Method
Flammable Limits- Upper	N/A	
Lower	N/A	

Extinguishing Media

Use water spray, carbon dioxide, foam or dry chemical.

Fire Fighting Instructions

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use.

Fire and Explosion Hazards

None known.

6 ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Contain spill. Sweep or scoop up and remove to suitable container. Flush with water. Prevent spilled product from entering sewers or natural water. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7 HANDLING AND STORAGE



Cerexagri-Nisso LLC

HYDROTHOL (R) 191 Granular Aquatic Algicide and Herbicide

Material Safety Data Sheet

Cerexagri-Nisso LLC

7 HANDLING AND STORAGE

Handling

Do not breathe dust.

Use only with adequate ventilation. Do not get in eyes, on skin or on clothing. Keep container closed. Empty container may contain hazardous residues. Wash thoroughly after handling.

Storage

Do not store in a manner where cross-contamination with pesticides, fertilizers, food or feed could occur. Store in a cool, dry place.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Investigate engineering techniques to reduce exposures. Provide ventilation if necessary to minimize exposures. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Eye / Face Protection

Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment immediately available.

Skin Protection

Minimize skin contamination by following good industrial hygiene practice. Wearing rubber gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

Respiratory Protection

Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. If exposures cannot be kept at a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Airborne Exposure Guidelines for Ingredients

The components of this product have no established Airborne Exposure Guidelines

-Only those components with exposure limits are printed in this section.

-Skin contact limits designated with a "Y" above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required.

-ACGIH Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic reactions.

-WEEL-AIHA Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic skin reactions.



Cerexagri-Nisso LLC

HYDROTHOL (R) 191 Granular Aquatic Algicide and Herbicide

Material Safety Data Sheet

Cerexagri-Nisso LLC

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Odor	Grey to brown granular solid, damp must odor
pH	4.6 (1% aqueous solution)
Specific Gravity	NA
Vapor Pressure	2.09 X10 ⁻⁵ mmHg @25C (Endothal monosalt)
Vapor Density	NA
Melting Point	NE
Freezing Point	NA
Boiling Point	NA
Solubility In Water	Disperse in water
Evaporation Rate	NA
Percent Volatile	NA
SCAQMD VOC	11.5%

10 STABILITY AND REACTIVITY

Stability

This material is chemically stable under normal and anticipated storage and handling conditions.

Hazardous Polymerization

Does not occur.

Incompatibility

Materials that react with water.

Hazardous Decomposition Products

Extreme temperatures may convert endothal product to endothal anhydride, a strong vesicant, causing blistering of eyes, mucous membranes, and skin. (see section 16)

11 TOXICOLOGICAL INFORMATION

Toxicological Information

Data on this material and/or its components are summarized below.

Single exposure (acute) studies indicate:

Oral - Slightly Toxic to Rats (LD50 1,540 mg/kg)

Dermal - Practically Non-toxic to Rabbits (LD50 >10,000 mg/kg)

Inhalation - Practically Non-toxic to Rats (4-hr LC50 5.32 mg/l)

Skin Irritation - Severely Irritating

Eye Irritation - Severely Irritating

7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid (technical active ingredient)

Intentional swallowing of 40 ml led to death within 12-hours. Skin allergy was observed in guinea pigs following repeated exposure. Repeated dietary administration (via gelatin capsules) produced vomiting, diarrhea, sluggish movements, and liver, kidney and blood effects in dogs. Long-term dietary administration to rats and mice produced effects in the glandular stomach. High mortality rates and intestinal tumors considered to be secondary to the effects in the stomach were observed in mice. Long-term application to the skin of mice produced no tumors. No birth defects were observed in the offspring of rats exposed orally during pregnancy, even at dosages that produced adverse effects on the mothers. Skeletal anomalies were observed in the offspring of rabbits and mice exposed orally during pregnancy, but only at dosages that produced adverse effects in the mothers. No genetic changes were observed in tests using bacteria, animal cells or animals.



HYDROTHOL (R) 191 Granular Aquatic Algicide and Herbicide

Material Safety Data Sheet

Cerexagri-Nisso LLC

12 ECOLOGICAL INFORMATION

Ecotoxicological Information

Hydrothol 191

This material is highly toxic to *Daphnia magna* (48-hr LC50 0.36 mg/l), fathead minnow (96-hr LC50 0.94 mg/l), golden shiner (120-hr LC50 0.32 mg/l) and scud (96-hr TL50 0.48 mg/l). It is moderately toxic to mussels (48-hr LC50 4.85 mg/l) and rainbow trout (96-hr LC50 1.7 mg/l). The 7-day LC50 for *Ceriodaphnia* was 0.18-0.19 mg/l and 0.304 mg/l for fathead minnow.

7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid (technical active ingredient)

This material is slightly toxic to bluegill sunfish (96-hr LC50 77 mg/l), rainbow trout (96-hr LC50 49 mg/l), *Daphnia magna* (48-hr LC50 92 mg/l), eastern oysters (96-hr LC50 54 mg/l), mysid shrimp (96-hr LC50 39 mg/l) and fiddler crab (96-hr LC50 85.1 mg/l). It is practically non-toxic to sheepshead minnow (96-hr LC50 110 mg/l) and common mummichog (96-hr LC50 213.9 mg/l).

This material has an 8-day LC50 of >5,000 ppm (bobwhite quail and mallard ducklings), a 21-day LD50 of 111 mg/kg (mallard ducks), a 30-day MATC of 19 mg/l (fathead minnows) and a 21-day MATC of 6.7 mg/l (*Daphnia magna*). No adverse effects were observed in mallard ducks and bobwhite quail following repeated (20-weeks) administration in the diet.

Chemical Fate Information

7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid (technical active ingredient)

No degradation was observed in irradiated or dark water during a 30-day test period at pH 7 or 9. Rapid degradation was observed in irradiated, but not dark, water at pH 5 (half-life <24 hours). This material adsorbed readily from aqueous solution on to Crosby silt loam. It is not expected to bioaccumulate with bioaccumulation factors (BCF) of 10 for mosquito fish and 0.003-0.008 for bluegills.

13 DISPOSAL CONSIDERATIONS

Waste Disposal

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

14 TRANSPORT INFORMATION

DOT Name	Not regulated
DOT Technical Name	
DOT Hazard Class	
UN Number	
DOT Packing Group	PG
RQ	1000 lbs (for Endothall)

15 REGULATORY INFORMATION

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370)

Immediate (Acute) Health	Y	Fire	N
Delayed (Chronic) Health	N	Reactive	N
		Sudden Release of Pressure	N



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Ingredient Related Regulatory Information:

SARA Reportable Quantities

Mono(N,N-dimethylalkylamine) salt of endothall

CERCLA RQ

NE

SARA TPQ

NE

16 OTHER INFORMATION

Revision Information

Revision Date 05 JAN 2006

Revision Number 13

Supersedes Revision Dated 03-JAN-2006

Revision Summary

Update section 1

Key

NE= Not Established NA= Not Applicable (R) = Registered Trademark

Miscellaneous

Proper PPE and ventilation should be used when using high heat, such as welding or oxy-acetylene torch cutting, on machinery that may have endothal residue.

Hydrothol (R) is a registered trademark of Cerexagri, Inc.

Cerexagri-Nisso LLC believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use are beyond the control of Cerexagri-Nisso LLC, Cerexagri-Nisso LLC expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.

Syngenta Crop Protection, Inc.
Post Office Box 18300
Greensboro, NC 27419

In Case of Emergency, Call
1-800-888-8372

1. PRODUCT IDENTIFICATION

Product Name: **REWARD LANDSCAPE AND AQUATIC HERBICIDE** Product No.: A12872A
 EPA Signal Word: Caution
 Active Ingredient(%): Diquat dibromide (37.3%) CAS No.: 85-00-7
 Chemical Name: [6,7-dihydrodipyrido(1,2-a:2',1'-c)pyrazinediium dibromide]
 Chemical Class: Bipyridilium (dipyridilium) contact herbicide
 EPA Registration Number(s): 100-1091 **Section(s) Revised: 1, 8, 11**

2. HAZARDS IDENTIFICATION
Health and Environmental

Toxic by inhalation. Irritating to eyes and skin. Harmful if swallowed.

Hazardous Decomposition Products

Flammable hydrogen gas may be formed on contact with aluminum. See "Conditions to Avoid", Section 10.
 May decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Dark brown liquid
 Odor: Odorless

Unusual Fire, Explosion and Reactivity Hazards

This product may form flammable and explosive hydrogen gas when in contact with aluminum.
 During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Diquat dibromide (37.3%)	Not Established	0.5 mg/m ³ TWA (inhalable); 0.1 mg/m ³ TWA (respirable), skin	0.5 mg/m ³ TWA (0.5 total; 0.08 respirable) ***	No

*** Syngenta Occupational Exposure Limit (OEL)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
 Syngenta Hazard Category: B

4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

- Ingestion:** If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
- Eye Contact:** If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Skin Contact:** If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Inhalation:** 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 Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Notes to Physician

To be effective, treatment for ingestion of the product must begin IMMEDIATELY. Treatment consists of binding the active ingredient, diquat, in the gut with suspensions of activated charcoal or bentonite clay, administration of cathartics to enhance elimination and removal of diquat from the blood by charcoal hemoperfusion or continuous hemodialysis.

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	Not Applicable	
Flammable Limits (% in Air):	Lower: Not Applicable	Upper: Not Applicable
Autoignition Temperature:	Not Applicable	
Flammability:	Not Applicable	

Unusual Fire, Explosion and Reactivity Hazards

This product may form flammable and explosive hydrogen gas when in contact with aluminum. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire

Use dry chemical, foam or CO2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

This product reacts with aluminum to produce flammable hydrogen gas. Do not mix or store in containers or systems made of aluminum or having aluminum fittings.

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

- Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.
- Eye Contact: Where eye contact is likely, use chemical splash goggles.
- Skin Contact: Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.
- Inhalation: A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance: Dark brown liquid
- Odor: Odorless
- Melting Point: Not Applicable
- Boiling Point: Not Available
- Specific Gravity/Density: 1.20 g/ml @ 68°F (20°C)
- pH: 4 - 6

Solubility in H₂O

Diquat dibromide: 718,000 mg/l @ 68°F (20°C) and pH 7.2

Vapor Pressure

Diquat dibromide: < 10(-8) mmHg @ 77°F (25°C)

10. STABILITY AND REACTIVITY

- Stability: Stable under normal use and storage conditions.
- Hazardous Polymerization: Will not occur.
- Conditions to Avoid: Concentrate should not be stored in aluminum containers. Spray solutions should not be mixed, stored or applied in containers other than plastic, plastic-lined steel, stainless steel or fiberglass.
- Materials to Avoid: Strong alkalis and anionic wetting agents (e.g., alkyl and alkylaryl sulfonates). Corrosive to aluminum.
- Hazardous Decomposition Products: Flammable hydrogen gas may be formed on contact with aluminum. See "Conditions to Avoid", Section 10. May decompose at high temperatures forming toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

- Ingestion: Slightly Toxic
Oral (LD50 Female Rat) : = 886 mg/kg body weight
- Dermal: Practically Non-Toxic
Dermal (LD50 Rat) : > 5050 mg/kg body weight
- Inhalation: Slightly Toxic
Inhalation (LC50 Rat) : = 0.62 mg/l air - 4 hours
- Eye Contact: Mildly Irritating (Rabbit)
- Skin Contact: Slightly Irritating (Rabbit)

Skin Sensitization: Not a Sensitizer (Guinea Pig)

Reproductive/Developmental Effects

Diquat dibromide: Mutagenicity: No evidence in in vivo assays.

Development Toxicity: In rabbit studies a small percentage of fetuses had minor defects at 3 and 10 mg ion/kg/d.

Chronic/Subchronic Toxicity Studies

Diquat dibromide: Kidney weight decreases and cataracts seen in dogs at 12.5 mg ion/kg/d.

No evidence for neurotoxic effects in rats dosed up to 400 ppm ion in the diet for 13 weeks.

Carcinogenicity

Diquat dibromide: No evidence of carcinogenicity in rat and mouse studies.

Other Toxicity Information

None

Toxicity of Other Components

Not Applicable

Target Organs

Active Ingredients

Diquat dibromide: Eye, kidney

Inert Ingredients

Not Applicable

12. ECOLOGICAL INFORMATION

Summary of Effects

Diquat dibromide:

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Eco-Acute Toxicity

Diquat dibromide:

Fish (Rainbow Trout) 96-hour LC50 14.83 ppm

Fish (Bluegill Sunfish) 96-hour LC50 13.9 ppm

Bird (Mallard Duck) LD50 Oral 60.6 mg/kg

Bird (Bobwhite Quail) 8-day dietary LC50 2932

Bird (Mallard Duck) 8-day dietary LC50 > 5000 ppm

Bee (Contact) LD50 100 ug/bee

Invertebrate (Water Flea) 48-hour EC50 0.77 ppm

Green Algae 4-day EC50 9.4 ppb

Eco-Chronic Toxicity

Diquat dibromide:

Invertebrate (Water Flea) 21-day LOEC 0.17 ppm

Bird (Mallard Duck) Reproduction LOEL 25 ppm

Fish (Fathead Minnow) 34-day LOEC 1.5 ppm

Environmental Fate

Diquat dibromide:

The information presented here is for the active ingredient, diquat dibromide.

Stable in soil and water. Immobile in soil. Sinks in water (after 24 h).

13. DISPOSAL CONSIDERATIONS

Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification

Ground Transport - NAFTA

Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat Dibromide)

Hazard Class or Division: Class 8

Identification Number: UN 1760

Packing Group: PG III

B/L Freight Classification

Herbicides, NOI (NMC Class 60)

Comments

Water Transport - International

Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat Dibromide)

Hazard Class or Division: Class 8

Identification Number: UN 1760

Packing Group: PG III

Air Transport - International

Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat Dibromide)

Hazard Class or Division: Class 8

Identification Number: UN 1760

Packing Group: PG III

Packing Instructions: Passenger - 818, Cargo 820

Packaging Limitations: Inner packages over 5 liters and single packages over 60 liters cannot be shipped by cargo aircraft;

Inner packages over 2.5 liters and outer packages over 5 liters cannot be shipped by passenger aircraft.

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard
Chronic Health Hazard

Section 313 Toxic Chemicals: Not Applicable

California Proposition 65

None

CERCLA/SARA 302 Reportable Quantity (RQ)

Report product spills \geq 268 gal. (based on diquat [RQ = 1,000 lbs.] content in the formulation)

RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

TSCA Status

Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 2
Flammability: 1
Instability: 0

HMIS Hazard Ratings

Health: 2
Flammability: 1
Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 4/11/2002

Revision Date: 7/24/2007

Replaces: 6/27/2007

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

End of MSDS

MATERIAL SAFETY DATA SHEET

AB Navigate

1. Product And Company Identification

Supplier

Applied Biochemists (WI)
A division of Advantis Technologies, Inc.
W175 N11163 Stonewood Drive, Suite 234
Germantown, WI 53022

Telephone Number: (262) 255-4449

FAX Number: (262) 255-4268

Web Site: www.appliedbiochemists.com

Manufacturer

Advantis Technologies, Inc.
1400 Bluegrass Lakes Parkway
Alpharetta, GA 30004 United States

Telephone Number: (770) 521-5999

FAX Number: (770) 521-5959

Web Site: www.poolspacare.com

Supplier Emergency Contacts & Phone Number

CHEMTREC - DAY OR NIGHT: (800) 424-9300

Manufacturer Emergency Contacts & Phone Number

CHEMTREC - DAY OR NIGHT: (800) 424-9300

Issue Date: 02/15/2007

Product Name: AB Navigate

Chemical Name: 2,4-D: 2,4-Dichlorophenoxyacetic Acid, Butoxyethyl Ester

CAS Number: Not Established

Chemical Family: Aquatic Herbicide

MSDS Number: 379

2. Composition/Information On Ingredients

Ingredient Name	CAS Number	Percent Of Total Weight
2-BUTOXYETHYL-2,4-DICHLOROPHOXYACETATE	1929-73-3	
CRYSTALLINE SILICA	14808-60-7	

Ingredients listed in this section have been determined to be hazardous as defined in 29CFR 1910.1200. Materials determined to be health hazards are listed if they comprise 1% or more of the composition. Materials identified as carcinogens are listed if they comprise 0.1% or more of the composition. Information on proprietary materials is available in 29CFR 1910.1200(i)(1).

EMERGENCY OVERVIEW

Harmful if swallowed, inhaled, or absorbed through the skin. It is anticipated to be slightly to moderately toxic if swallowed and slightly toxic if inhaled.

3. Hazards Identification

Eye Hazards

Causes eye irritation.

Skin Hazards

May be irritating to skin.

Ingestion Hazards

It is anticipated to be slightly to moderately toxic if swallowed.

Inhalation Hazards

It is anticipated to be slightly toxic if inhaled.

Chronic/Carcinogenicity Effects

This product contains clay. IARC has classified crystalline silica (a component of clay) as a probably human carcinogen. Prolonged contact may cause liver damage, kidney damage, and/or chronic muscle damage.

Signs And Symptoms

Repeated and prolonged inhalation of this material may cause a form of disabling lung disease (commonly known as

MATERIAL SAFETY DATA SHEET

AB Navigate

3. Hazards Identification - Continued

Signs And Symptoms - Continued

silicosis). Clinical signs and symptoms for silicosis include cough, shortness of breath, wheezing and impairment of lung function. Impairment of lung function may be progressive. In the usual case of silicosis, there is a slow deterioration of capacity for physical effort, decreased chest expansion, and an increased susceptibility to tuberculosis and other respiratory infections. Short term, extremely heavy exposure to dust of this material (particularly small sized particles) can result in acute silicosis. Individuals with acute silicosis may suffer an abrupt onset of violent coughing, labored breathing, and weight loss; death has been known to occur within one to two years.

Conditions Aggravated By Exposure

None known.

First Aid (Pictograms)



4. First Aid Measures

Eye

In case of contact, hold eyelids apart and immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately if irritation develops and persists.

Skin

In case of contact, immediately flush skin with soap and plenty of water. Get medical attention immediately if irritation (redness, rash, blistering) develops and persists.

Ingestion

Call a physician or a poison control center immediately. Drink 1 or 2 glasses of water and induce vomiting. Never give anything by mouth to an unconscious victim.

Inhalation

If inhaled, remove to fresh air. If not breathing, give artificial respiration.

Fire Fighting (Pictograms)



5. Fire Fighting Measures

Flammability Class: Not flammable

Fire And Explosion Hazards

Thermal decomposition products include oxides of carbon, sulfur dioxides and hydrochloric acid.

Extinguishing Media

Water fog, carbon dioxide, dry chemical, or foam.

Fire Fighting Instructions

Firefighters should wear self-contained breathing apparatus and full protective gear. Dike to prevent contamination of water sources.

6. Accidental Release Measures

Clean up spill immediately. Use appropriate containers to avoid environmental contamination. Prevent release to the environment. Do not flush area with water as it can cause contamination of sewer system.

MATERIAL SAFETY DATA SHEET

AB Navigate

Handling & Storage (Pictograms)



7. Handling And Storage

Handling And Storage Precautions

Do not swallow, breath dust, store near food, contaminate water, food, or feed, apply to waters used for irrigation, agricultural sprays, watering dairy animals or domestic water supplies. **Keep out of reach of children.**

Handling Precautions

Wash hands before eating, drinking, or smoking.

Protective Clothing (Pictograms)



8. Exposure Controls/Personal Protection

Engineering Controls

Not normally required.

Eye/Face Protection

Safety glasses or splash goggles.

Skin Protection

Wear protective clothing to minimize contact. Wear chemical resistant gloves.

Respiratory Protection

Not normally required. If needed, use NIOSH approved respirator for dusts.

Other/General Protection

Use safe chemical handling procedures suitable for the hazards presented by this material.

9. Physical And Chemical Properties

Appearance

Gray/Tan granules.

Odor

Mild, phenolic odor.

Chemical Type: Mixture

Physical State: Solid

Percent Volitales: Not Determined

Packing Density: Not Determined

Solubility: Insoluble

Evaporation Rate: Not Determined

10. Stability And Reactivity

Stability: Stable

Hazardous Polymerization: Will not occur

Conditions To Avoid (Stability)

None known.

MATERIAL SAFETY DATA SHEET

AB Navigate

10. Stability And Reactivity - Continued

Incompatible Materials

Acids, bases, and oxidizers.

Hazardous Decomposition Products

Thermal decomposition products include oxides of carbon, sulfur dioxides and hydrochloric acid.

11. Toxicological Information

Acute Studies

None available.

12. Ecological Information

Ecotoxicological Information

None available.

13. Disposal Considerations

Dispose in accordance with applicable federal, state and local government regulations. RQ for 2-Butoxyethy 2,4-dichlorophenoxy acetate (CAS# 1929-73-3) is 100 lbs.

14. Transport Information

Proper Shipping Name

Not regulated

Hazard Class

Not regulated

DOT Identification Number

NONE

15. Regulatory Information

No Data Available...

NFPA



HMIS

HEALTH	2
FLAMMABILITY	0
REACTIVITY	0
PERSONAL PROTECTION	F

16. Other Information

Revision/Preparer Information

MSDS Preparer: JHW

Disclaimer

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purposes(s).

Applied Biochemists (WI)



Material Safety Data Sheet

United Phosphorus, Inc.

NFPA	PPE		

Issued Date 07-Feb-2007

Revision Date 08-Nov-2007

Revision Number: 2

12-204 - AQUATHOL® K Aquatic Herbicide

1. PRODUCT AND COMPANY IDENTIFICATION

UPI

630 Freedom Business Center
Suite 402
King of Prussia, PA 19406

Emergency Telephone Number

Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887
Medical: Rocky Mountain Poison Control Center
(866) 673-6671 (24hrs)

Company Information

UPI

Contact Information

Customer Service

Phone Number

1-800-438-6071

Available Hrs

8:00 am to 5:00 pm EST

Product Name

AQUATHOL® K Aquatic Herbicide

EPA Reg #

70506-176

Recommended Use

Aquatic herbicide

Product Code

12-204

2. HAZARDS IDENTIFICATION

Emergency Overview

Causes irreversible eye damage
May be fatal if swallowed.
May be fatal if inhaled
Harmful if absorbed through skin

DANGER!**Appearance** Yellow, Brown.**Physical State** Liquid.**Odor** Slight chlorine.Potential Health Effects

- Principle Routes of Exposure
- Inhalation
- Skin contact

Eyes
Skin

Causes irreversible eye damage..
May cause mild skin irritation. Repeated or prolonged exposure may cause severe skin irritation.. Prolonged contact can result in redness and blistering of skin..

Inhalation
Ingestion

Slightly toxic if inhaled.
Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients Name

Chemical Name	CAS-No	Weight %	OSHA PEL
Dipotassium endothall salt	2164-07-0	40.3	N/A

4. FIRST AID MEASURES

Eye Contact	Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
Skin Contact	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call poison control center or doctor for treatment advice.
Inhalation	Move to fresh air If person is not breathing, call 911 or an ambulance, then give artificial respiration. Call a poison control center or doctor for further treatment advice.
Ingestion	Call a physician or Poison Control Centre immediately 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 Never give anything by mouth to an unconscious person
Notes to Physician	No information available Treat symptomatically

5. FIRE-FIGHTING MEASURES

Flammable Explosive Properties

Flash Point	Not available
Autoignition Temperature	Not available
Flammability Limits in Air	Not available
Extinguishing Media	Use: Water spray, Carbon dioxide (CO ₂), Dry chemical,
Fire/Explosion Hazard	No information available
Hazardous Combustion Products	Extreme temperatures convert Endothall product to endothall anhydride which is a strong vesicant causing blistering of eyes, mucous membranes and skin.

NFPA
Health 4
Flammability 0
Instability 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Avoid contact with skin, eyes and clothing.
Environmental Precautions	Do not flush into surface water or sanitary sewer system. Consult a regulatory specialist

to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits..

Methods for Clean-up

Remove all ignition sources. Soak up with inert absorbent material. Ground and bond containers when transferring material. Keep in suitable and closed containers for disposal.

7. HANDLING AND STORAGE

Handling

Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. Keep out of reach of children. Empty containers may contain hazardous residues.

Storage

Store in an area where cross-contamination with pesticides, fertilizers, food or feed could not occur. .

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Controls

Investigate engineering techniques to reduce exposures. Local mechanical exhaust ventilation is preferred. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems. .

Personal Protective Equipment

Eye/face Protection

Tightly fitting safety goggles

Skin Protection

Rubber gloves.

Respiratory Protection

Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical goggles. If exposures cannot be kept at a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure, use an approved full face positive-pressure, self-contained breathing apparatus. Respiratory protection programs must comply with 29 CFR 1910.134. .

General Hygiene Considerations

Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Yellow Brown	Odor	Slight chlorine
Physical State	Liquid	pH	7.4
Boiling Point/Range	>100 °C	Melting Point/Range	Not available
Specific Gravity	1.285	Solubility	Miscible
Evaporation Rate	Not available	Vapor Pressure	Not available
Vapor Density	Not available	VOC Content	Not available
Viscosity	Not available	Molecular Weight	No data available
Bulk Density	No data available	Percent Solids	Not available
Percent Volatiles	59.7		

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions
Conditions to Avoid	No information available.
Incompatible Materials	No materials to be especially mentioned
Hazardous Decomposition Products	Extreme temperatures may convert endothall product to endothall anhydride, a strong vesicant, causing blistering of

eyes, mucous membranes and skin. .

Possibility of Hazardous Polymerization

None under normal processing

11. TOXICOLOGICAL INFORMATION**Acute Toxicity****Component Information**

Although no allergic skin reactions were observed in guinea pigs following exposure to this material in water, allergic skin reactions were observed following exposure to this material in ethanol. Repeated application to the skin of rats produced severe skin irritation, liver, and kidney effects considered to be secondary to irritation, and increased mortality. Long-term dietary administration produced no adverse effects in rats. Dermal - Slightly toxic to Rabbits (LD50 2,000 mg/kg) Skin irritation - Non-irritating to rabbits Inhalation - Slightly toxic to rats (4 hr LC50 0.83 mg/l) aerosol Eye irritation - Cause irreversible eye damage in rabbits. Endothall- Intentional swallowing of 40 ml led to death within 12-hours. Skin allergy was observed in guinea pigs following repeated exposures. Repeated dietary administration (via gelatin capsules) produced vomiting, diarrhea, sluggish movements, and liver, kidney and blood effects in dogs. Long-term dietary administration to rats and mice produced effects in the glandular stomach. High mortality rates and intestinal tumors considered to be secondary to the effects in the stomach were observed in mice. Long-term application to the skin of mice produced no tumors. No birth defects were observed in the offspring of rats exposed orally during pregnancy, even at dosages that produced adverse effects on the mothers. Skeletal anomalies were observed in the offspring of rabbits and mice exposed orally during pregnancy, but only at dosages that produced adverse effects in the mothers. No genetic changes were observed in tests using bacteria, animal cells or animals.

Chronic Toxicity

There are no known carcinogenic chemicals in this product

Carcinogenicity**12. ECOLOGICAL INFORMATION****Ecotoxicity**

Endothal-potassium: This material is practically non-toxic to bluegill sunfish (LC50 107-528.7 mg/l), eastern oysters (LC50 117 mg/l), largemouth bass (LC50 130 mg/l), fiddler crab (LC50 752.4 mg/l) , and sheephead minnow (LC50 340 mg/l) and slightly toxic to mysid shrimp (LC50 79 mg/l) and smallmouth bass (LC50 47 mg/l). It is practically non-toxic to slightly toxic to Daphnia magna (EC50 72-319.5 mg/l) and no more than moderately toxic to freshwater blue-green algae (LC50 >4.8 mg/l), freshwater diatoms (LC50 >3.6 mg/l), freshwater green algae (LC50 >4.8 mg/l) and marine diatoms (LC50 >9.0 mg/l).

13. DISPOSAL CONSIDERATIONS**Waste Disposal Method**

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

Contaminated Packaging

Empty containers should be taken for local recycling, recovery or waste disposal

14. TRANSPORT INFORMATION**DOT**

Proper Shipping Name Pesticides, liquid, toxic, n.o.s. (Endothal)
Hazard Class 6.1
UN-No 2902
Packing Group PG III
Reportable Quantity (RQ): 1,000 lbs

ICAO

UN-No 2902
Proper Shipping Name Pesticide, liquid, toxic, n.o.s. (Endothal)
Hazard Class 6.1
Packing Group PG III

IATA

UN-No 2902
Proper Shipping Name Pesticide, liquid, toxic, n.o.s. (Endothal)
Hazard Class 6.1
Packing Group PG III
ERG Code 6L

IMDG/IMO

Proper Shipping Name Pesticide, liquid, toxic, n.o.s. (Endothal)
Hazard Class 6.1
UN-No 2902
Packing Group PG III
EmS No. F-A, S-A

15. REGULATORY INFORMATION

International Inventories

Dipotassium endothal salt
NDSL Listed
EINECS/ELINCS Listed

USA

Federal Regulations

SARA 313

Y

Chemical Name	CAS-No	Weight %
Dipotassium endothal salt	2164-07-0	40.3

SARA 311/312 Hazardous Categorization

Chronic Health Hazard No
Acute Health Hazard Yes
Fire Hazard No
Sudden Release of Pressure Hazard No
Reactive Hazard No

Clean Water Act

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)

This product does not contain any HAPs.

CERCLA

RCRA

Pesticide Information

State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

**State Right-to-Know
International Regulations**

Mexico - Grade Not available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

Not determined

16. OTHER INFORMATION

Revision Date 08-Nov-2007

Revision Summary

Update section 3

Miscellaneous

UPI has acquired Cerexagri. The previous EPA registration number was 4581-204

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End of MSDS

