

# HARPOON™



STATE OF HAWAII  
Department of Agriculture

**ACCEPTED**

LICENSE NO.

**9123.25**

## AQUATIC HERBICIDE

FOR USE IN SLOW MOVING OR QUIESCENT BODIES OF WATER, INCLUDING GOLF COURSES, ORNAMENTAL, FISH, AND FIRE PONDS; FRESH WATER LAKES, FISH HATCHERIES AND POTABLE WATER RESERVOIRS. AREAS TREATED WITH HARPOON™ AQUATIC HERBICIDE MAY BE USED FOR FISHING AND SWIMMING IMMEDIATELY AFTER TREATMENT. IN ADDITION, WATER TREATED WITH HARPOON™ AQUATIC HERBICIDE CAN BE USED AS A SOURCE OF HUMAN AND ANIMAL DRINKING WATER AFTER FURTHER POTABLE WATER TREATMENT

### Active Ingredient

Copper-ethylenediamine complex*	24.0%
Inert Ingredients	76.0%
Total	100.0%

\*Metallic copper equivalent, 8%

One gallon contains 0.8 pounds of elemental copper.

## KEEP OUT OF THE REACH OF CHILDREN CAUTION

FIRST AID	
IF SWALLOWED:	<ul style="list-style-type: none"><li>• Call a poison center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul>
IF IN EYES:	<ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes.</li><li>• Remove contact lenses, if present, after the first five minutes, then continue rinsing eye.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15 to 20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
IF INHALED:	<ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>
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 toll free 1-800-222-1222	

See Additional precautions on back panel.

Net Contents: \_\_\_\_\_

Applied Biochemists  
Germantown, WI 53022

EPA Reg. No. 8959-54  
EPA Est. No. 42291-GA-1

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

Harmful if swallowed. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco. Do not apply this product in a manner as to directly expose workers or other persons.

**ENVIRONMENTAL HAZARDS**

This product may be toxic to fish. Trout and other species of fish may be killed at application rates recommended on this label. Generally, fish toxicity is reduced as water hardness increases. Consult State Fish and Game Agency before applying this product to public waters.

**STORAGE AND DISPOSAL**

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

**STORAGE:** Store in a cool, dry place.

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product must be disposed of on-site according to the use-instructions provided in this label or at an approved waste disposal facility.

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

**DIRECTIONS FOR USE**

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

**GENERAL INFORMATION**

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**Pre-Treatment Considerations (All labeled sites):**

**Permits:** Some states may require permits for the application of this product to public waters. Check with your local authorities.

For optimum results, **Harpoon™ Aquatic Herbicide** should be applied early in the day under bright or sunny conditions when plants are actively growing and water temperatures are at least 60° F (15.5°C).

**General Treatment Notes:** The following suggestions apply to the use of this product as a herbicide in all approved use sites. For optimum effectiveness:

- Apply early in the day under calm, bright or sunny conditions when plants are actively growing and water temperatures are at least 60° F (15.5°C).
  - Treat when growth first begins to appear or create a nuisance, if possible.
  - Apply in a manner that will ensure even distribution of the chemical within the treatment area.
  - Reduced activity may occur in murky/shaded waters or where silt and/or scale has built up on plant leaf surfaces.
  - Algae growth on and around target plants may interfere with the uptake of **Harpoon™ Aquatic Herbicide**. Pretreat these areas with **Citrine-Plus®**, EPA Reg. No. 8959-10 or other E.P.A. registered algaecides. Do not exceed 1.0 ppm of total copper when using **Harpoon™ Aquatic Herbicide** and **Citrine-Plus**.
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**Harpoon™ Aquatic Herbicide** is a chelated copper formulation that effectively controls Hydrilla, Egeria (Brazilian Elodea), Naiads, Coontail, Elodea, Water Lettuce, Water Hyacinth, Giant Salvinia, and other species having a sensitivity to copper absorption. If the alkalinity (hardness) of the water is low; **Harpoon™ Aquatic Herbicide** may also control Eurasian Watermilfoil; Horned, Sago, American, Curly-leaf, & Floating-leaf Pondweeds. **Harpoon™ Aquatic Herbicide** may be applied to slow moving or quiescent bodies of water, including lakes, fish hatcheries, potable water reservoirs, golf courses, and ornamental, fish and fire ponds.

For broader spectrum aquatic weed control, **Harpoon™ Aquatic Herbicide** may be tank mixed with other herbicides including diquat, fluridone and endothall. Refer to “Directions for Tank Mixes” for more information. Follow all precautions and guidelines on the labels of any product(s) used with **Harpoon™ Aquatic Herbicide**.

Correct placement of **Harpoon™ Aquatic Herbicide** is essential in order to provide acceptable penetration into plant tissues. Apply **Harpoon™ Aquatic Herbicide** when weeds are actively growing, focusing on areas where the greatest concentration of foliage is located. Be certain to apply in such a way as to reach as much of the leafy surfaces as possible. The presence of silt or algae in the water or covering leaves can reduce the effectiveness of the application. In such cases, tank mixing **Harpoon™ Aquatic Herbicide** with an algaecide, such as Cutrine Plus®, EPA Reg. No. 8959-10, may improve performance.

**Application Methods:** Equipment and methods should be used that accurately and efficiently apply product to target growth. This can include aircraft, sprayer, or spray boat equipment. Product can be applied as a subsurface injection, through weighted hoses, in an invert emulsion, or mixed with a polymer, as appropriate (refer to specific instructions and use chemicals cleared for application to water and growing crops). To ensure uniform coverage of the area to be treated, **Harpoon™ Aquatic Herbicide** may be applied diluted or undiluted in either a surface or subsurface application.

Effective control of treated weeds generally requires 12 to 24 hours contact time. Within 3 to 7 days following treatment, the aquatic weeds will drop below the surface of the water. **Harpoon™ Aquatic Herbicide** may be re-applied in 10 to 14 days if suitable control is not achieved from the initial application. After they sink below the surface, it may take up to 6 weeks for the weeds to defoliate and decompose.

Apply only as directed on this label. Avoid contact of concentrated product with crops, ornamentals, grass or desirable plants. Injury may occur if undiluted **Harpoon™ Aquatic Herbicide** or concentrations above 1.0 ppm of copper comes in contact with ornamentals, crops, grass, or other foliage. Do not exceed 1.0 ppm total copper.

Under conditions of heavy infestation or low oxygen levels, treat only 1/3 to 1/2 of the water body at a time to avoid fish suffocation caused by oxygen depletion from decaying vegetation. To minimize this risk, wait 10 -12 days before treating the remaining areas. Treatment should initiate along the shoreline and proceed outwards towards deeper water, to allow fish to move into untreated areas.

**Application Rates for Aquatic Weed Control in Quiescent or Slow Moving Water**

Light to Moderate Growth is defined as a treatment area where submersed plants have not reached the water surface (“topped out”) and less than 65% of the bottom or water surface (in the case of floating plants) is covered with target plants. Heavy Infestations is an area where submersed vegetation growth has reached the water surface and/or bottom growth or floating plants cover more then 65% of the treatment area.

**Do not apply more than 1.0 ppm copper.**

Select low range rate for light to moderate growth and upper range rate for heavy infestations.

<u>Targeted species:</u>	<u>Copper Level Required (ppm)</u>
<u>In water of medium to high hardness:</u>	
<i>Hydrilla verticillata</i> (Hydrilla)	0.75 -1.0
<i>Eichhornia crassipes</i> (Waterhyacinth)	0.75 -1.0
<i>Pistia stratiotes</i> (Water Lettuce)	0.75 -1.0
<i>Egeria densa</i> (Brazilian Elodea)	0.50 -0.75
<i>Najas</i> sp. (Southern/Northern Naiads)	0.50 -1.0
<i>Ceratophyllum demersum</i> (Coontail)	0.50 -1.0
<i>Elodea canadensis</i> (Common Elodea)	0.50 -1.0

The following should be treated only in water of low hardness:

**Low Hardness** = Better defined as: Calcium Hardness less than 150 ppm.

<i>Myriophyllum spicatum</i> (Eurasian Watermilfoil)	0.75 -1.0
<i>Potamogeton pectinatus</i> (Sago Pondweed)	0.75 -1.0
<i>Potamogeton nodosus</i> (American Pondweed)	0.75 -1.0

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**APPLICATION RATE CALCULATION**

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**Application Site Measurement (Lakes, Ponds, Reservoirs and Other Static or Low-Flow Waters):**

In lakes, reservoirs, ponds, and static canals, this label defines the application site as the location where this product is applied. Measure surface dimensions of the application site including length, width and average depth. Use the following formula to determine acre-feet:

$$\text{Length(ft.)} \times \text{Width(ft.)} \times \text{Avg. Depth(ft.)} \div 43,560 = \text{Acre-Feet}$$

Accurate maps and electronic devices can aid in determining area measurements and depths of treatment areas. Multiply Application Rate (from the chart below), times Acre-Feet (or surface acres for floating plants) to determine volume of **Harpoon™ Aquatic Herbicide** required.

$$(\text{acre-ft}) \times (\text{gallons per acre-ft}) = \text{total gallons of Harpoon™ Aquatic Herbicide required}$$

Application Rates	
ppm copper desired	gallons per acre-ft
0.5 ppm	1.7
0.75 ppm	2.5
1.0 ppm	3.3

**Example:**

Pond dimensions: 200(ft) x 200(ft) x 4(ft) ÷ 43,560 = 3.67 acre-feet

To obtain .5 ppm of copper: (3.67 acre-ft) x (1.7 gallons per acre-ft) = 6.24 gallons of **Harpoon™ Aquatic Herbicide** required.

## METHODS OF APPLICATION

**Note:** Always ensure application equipment has been cleaned and is in proper working condition before using **Harpoon™ Aquatic Herbicide**. When application has been completed, thoroughly rinse spray tanks, hoses and/or pumps with fresh water, disposing of diluted rinsate within the treatment area.

### APPLICATION USING SPRAY EQUIPMENT:

**Surface:** In shallow areas, such as along shoreline, **Harpoon™ Aquatic Herbicide** can be effectively applied using backpack units or portable tank sprayers. Dilute **Harpoon™ Aquatic Herbicide** with sufficient water to evenly and efficiently treat within the intended treatment.

**Use with Polymer in Application:** A sinking agent, approved for water and crops, can be mixed with this product. For each surface acre to be treated, prepare a solution using the correct rate of **Harpoon™ Aquatic Herbicide** with water and the sinking agent to achieve a final application mix volume of 100 to 400 gallons. Blend the sinking agent into the herbicide mix following the agent's directions for use and maintaining continuous agitation while making application. The sinking agent will assist **Harpoon™ Aquatic Herbicide** in reaching and adhering to the target plants. Applications are most effective when made on dense areas of growth and when applied moving slowly in opposite direction to the water flow.

### SPRAY APPLICATION BY BOAT:

**Surface:** In shallow areas, such as along shorelines, boat-mounted tank-type power sprayers or portable water pumps equipped with appropriate dilution water and chemical intakes with calibration valves can be used to effectively apply **Harpoon™ Aquatic Herbicide** through handheld spray wands or adjustable, tapered fire nozzles. Dilute **Harpoon™ Aquatic Herbicide** with sufficient water to evenly and efficiently treat within the intended treatment area.

**Subsurface Application:** Applications in water depths of more than four feet are best made using a weighted trailing hose and applied where growth is most dense, to help assure contact with the foliage. Avoid dragging the hose through the bottom sediment.

**Polymer Application:** If there is concern about extended contact time with the target plants, a polymer can be blended with **Harpoon™ Aquatic Herbicide** or a premix of the herbicide and water. Manufacturer's directions and guidelines should be followed when using a polymer.

**Invert Application:** **Harpoon™ Aquatic Herbicide** can be inverted using either tank mix or multi-fluid mixer techniques with invert oil approved for water and growing crops. For submersed plants, invert applications should be made through weighted hoses dragged below the water surface. For heavy infestations, direct application is preferable. Care should be taken to prepare an invert emulsion to provide a heavy viscous consistency.

### Suggested mixtures for invert application:

For tank mix systems:

Three gallons of invert oil should be blended with 80 gallons of water and 8 gallons of **Harpoon™ Aquatic Herbicide**.

### Bi-fluid mixer systems:

Three gallons of invert oil should be blended with 60 gallons of water and 16 gallons of **Harpoon™ Aquatic Herbicide**.

### AIRCRAFT APPLICATION

**Polymer Application:** **Harpoon™ Aquatic Herbicide** should be blended with a suitable polymer and applied at a rate of 20 gallons of total spray mix per surface acre. The polymer/herbicide blend must be continuously agitated during the application. Do not apply by aircraft when efficacy at depths below 4

ft. are required.

## DIRECTIONS FOR TANK MIXES

**GENERAL:** Do not mix this product with any other product if the label prohibits such mixtures. When using tank mixes, do not exceed the application rate of the product that is most restrictive. All mix directions given below are calculated for application at rate of 20 gallons per surface acre. If algae is present on the plants being treated, it may interfere with effectiveness of the treatment. Pre-treatment with Cutrine-Plus<sup>®</sup>, Reg. No. 8959-10, may improve control. Do not exceed 1.0 ppm total copper when using Harpoon<sup>™</sup> Aquatic Herbicide and Cutrine-Plus.

**Harpoon<sup>™</sup> Aquatic Herbicide + Reward**, EPA Reg. No. 100-1091. Helicopter applications may be done using mixes of diquat [diquat dibromide (1,2-a:2',1'-c) pyrazinedium dibromide 35.3%]] and **Harpoon<sup>™</sup> Aquatic Herbicide**. Application can be made via surface spray or subsurface methods.

### **SPECIES TREATED:**

Sago Pondweed, Curly-leaf Pondweed, Leafy Pondweed, Floating-leaf Pondweed, Richardson Pondweed, Small Pondweed, Common Elodea, Duckweed, Water Lettuce, Eurasian Watermilfoil, Coontail, Common Salvinia, Southern Naiad, Slender Naiad, Pennywort, Hydrilla and Water Hyacinth, Bladderwort and Cattail.

**MIX RATIOS:** (Based on application rate of 20 gallons of tank mix per surface acre).

Water	100 gallons
<b>Harpoon<sup>™</sup> Aquatic Herbicide</b>	20 gallons
Diquat	10 gallons
Cutrine-Plus <sup>®</sup> (Aquatic Algaecide)	2 gallons

**Harpoon<sup>™</sup> Aquatic Herbicide + Aquathol K**, EPA Reg. No. 4581-204: Application can be made via surface spray or subsurface methods.

### **SPECIES TREATED:**

Watermilfoil, Elodea, Coontail, *Potamogeton*, *Zannichellia*, *Cladophora*, *Pithophora*, *Spirogyra*, *Vallisneria*, *Chara*, *Najas*, American Pondweed and Sago Pondweed.

**MIX RATIOS:** (Based on application rate of 20 gallons of tank mix per surface acre).

Water	100 gallons
<b>Harpoon<sup>™</sup> Aquatic Herbicide</b>	20 gallons
Endothall	15 gallons

**Harpoon<sup>™</sup> Aquatic Herbicide + Sonar**, EPA Reg. No. 67690-4: Application can be made via surface spray or subsurface methods.

### **SPECIES TREATED:**

Watermilfoil, Naiad, Common Duckweed, American Pondweed, Sago Pondweed, Spatterdock, Bladderwort, Fanwort (*Cabomba*), Paragrass, Common Elodea, Brazilian Elodea, *Najas* Elodea and Coontail,

**MIX RATIOS:** (Based on application rate of 20 gallons of tank mix per surface acre).

Water	100 gallons
<b>Harpoon<sup>™</sup> Aquatic Herbicide</b>	20 gallons
Fluridone	1.5 quarts

## WARRANTY STATEMENT

Neither the manufacturer nor the seller makes any warranty, expressed or implied concerning the use of this product other than indicated on the label. Buyer assumes risk of use of this material when such use is contrary to label instructions. Read and follow the label directions.