



# Specimen Label

## Captain®

COPPER	GROUP	<b>NOT CLASSIFIED</b>	HERBICIDE
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For use in still or flowing aquatic sites including: golf course, ornamental, fish, irrigation and fire ponds and aquaculture including fish and shrimp; fresh water lakes, ponds, and fish hatcheries; potable water reservoirs; and crop and non-crop irrigation and drainage systems (canals, laterals and ditches) and chemigation systems.

### Active Ingredient

Copper Ethanolamine Complex† (Mixed CAS#'s 82027-59-6 & 14215-52-2)..... 28.2%

Other Ingredients ..... 71.8%

**TOTAL** ..... 100.0%

†Metallic copper equivalent = 9.1%

## KEEP OUT OF REACH OF CHILDREN DANGER/PELIGRO

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	
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>Hold eye open and rinse slowly and gently with water for 15 - 20 minutes.</li> <li>Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin or clothing</b>	<ul style="list-style-type: none"> <li>Take off contaminated clothing.</li> <li>Rinse skin immediately with plenty of water for 15 - 20 minutes.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>Call a poison control 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>
<b>If inhaled</b>	<ul style="list-style-type: none"> <li>Move person to fresh air.</li> <li>If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li> <li>Call a poison control center or doctor for further treatment advice.</li> </ul>
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 <b>INFOTRAC</b> at <b>1-800-535-5053</b> .	
<b>NOTE TO PHYSICIAN:</b> Probable mucosal damage may contraindicate the use of gastric lavage.	

Refer to label booklet for additional Precautionary Information and Directions for Use including First Aid and 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* and *Misuse* statements in label booklet. If terms are unacceptable, return at once, unopened.**

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## PRECAUTIONARY STATEMENTS

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### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**Danger. Corrosive. Causes irreversible eye damage. Causes skin irritation. Harmful if swallowed. Harmful if absorbed through skin. Harmful if inhaled. Do not get in eyes, on skin, or on clothing. Avoid breathing mist or spray vapor. When handling, wear protective eyewear, clothing, and chemical-resistant gloves as described under the section of this label pertaining to Personal Protective Equipment (PPE). Wash skin thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.**

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

#### Applicators and other handlers **must** wear:

- Coveralls worn over short-sleeved shirt and short pants;
- Socks and chemical resistant footwear;
- Chemical-resistant gloves made of Barrier Laminate; Butyl Rubber  $\geq$  14 mil; Nitrile Rubber  $\geq$  14 mils; Neoprene Rubber  $\geq$  14 mils; Natural Rubber  $\geq$  14 mils; Polyethylene, Polyvinyl chloride  $\geq$  14 mils, or Viton  $\geq$  14 mils; and
- Protective eyewear (such as goggles, safety glasses, or face shield); and
- A chemical-resistant apron when mixing and loading or cleaning equipment.

#### **Exception:** Aquatic Subsurface Application or Closed Application System

After this product has been diluted or tank mixed with water, users must, at a minimum, wear (**Note** - Mixers and loaders for this application method must still wear the PPE as described in the above section):

- Long-sleeved shirt and long pants; and
- Shoes plus socks.

### USER SAFETY REQUIREMENTS

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. Discard clothing and other absorbent material that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

### ENGINEERING CONTROLS

Pilots must use an enclosed cab that meets the definition listed in the WPS for agricultural pesticides (40 CFR 170.305).

## **USER SAFETY RECOMMENDATIONS**

### **Users should:**

- 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**

**Fish Advisory Statement:** This copper product is toxic to fish and aquatic organisms. Unlike most organic pesticides, copper is an element and will not break down in the environment and will therefore accumulate with repeated applications. Copper is a micronutrient, but its pesticidal application rate exceeds the amount of copper needed as a nutrient.

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## **DIRECTIONS FOR USE**

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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 this product. Use only according to label directions.

Do not apply this product in a way that concentrate will contact workers or other persons, either directly or through drift; only protected handlers may be in close proximity to the mixing area or application equipment while in use.

## **PRODUCT INFORMATION**

Captain<sup>®</sup> is a chelated copper formulation that is effective in controlling a broad range of green and blue-green (cyanobacteria) algae, including filamentous, planktonic and macrophytic. This product is also an effective herbicide on submersed weed species with susceptibility to copper. The ethanolamines in this product reduce the precipitation of copper with carbonates and bicarbonates in the water.

Treatment with this product will not by itself make water potable. For applications in waters destined for use as drinking water, those waters must receive additional and separate potable water treatment. Do not apply more than 1.0 ppm as metallic copper in any waters during any single application.

### **Treatment Notes**

Product performance is enhanced under certain conditions. SePRO Corporation recommends consulting a SePRO Aquatic Specialist for guidance in implementing a treatment program to achieve optimal results. To achieve optimum effectiveness:

- Treat when growth first begins to appear (if possible) or when target vegetation is actively growing.
- Apply in a manner that will ensure even product distribution within the treatment area.
- Use a high-pressure surface spray application to break up dense floating algal mats.
- In heavily infested areas, a second application may be necessary. Retreat areas if regrowth begins to appear or if seasonal control is desired. Repeating application of this product too soon after initial application may have no effect.

Waters treated with this product may be hazardous to aquatic organisms. Treatment of aquatic weeds and algae can result in oxygen loss from decomposition of dead biomass. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, do not treat more than ½ of the water body

and wait at least 14 days between treatments to avoid depletion of oxygen due to decaying vegetation (excluding water infrastructure and constructed conveyances such as drainage canals, ditches and pipelines or intakes and aqueducts for drinking water or irrigation use). Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Consult with the State or local agency with primary responsibility for regulating pesticides before applying to public waters, to determine if a permit is required.

Application of algaecides to high density blooms of cyanobacteria can result in the release of intracellular contents into the water. Some of these intracellular compounds are known mammalian hepato- and nervous system toxins. Therefore, to minimize the risk of toxin leakage, manage cyanobacteria effectively in order to avoid applying this product when blooms of toxin-producing cyanobacteria are present at high density. In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper at intervals shorter than 14 days should the circumstance demand.

Certain water conditions including low pH ( $\leq 6.5$ ), low dissolved organic carbon (DOC) levels (3.0 mg/L or lower) and "soft" waters (i.e. alkalinity less than 50 mg/L) increases the potential acute toxicity to non-target aquatic organisms. The application rates on this label are appropriate for water with pH values  $> 6.5$ , DOC levels  $> 3.0$  mg/L, and alkalinity greater than 50 mg/L. Avoid treating waters with pH values  $< 6.5$ , DOC levels  $< 3.0$ , and alkalinity less than 50 ppm (e.g., soft or acid waters), as koi, trout and other sensitive species of fish may be killed under such conditions.

Consult your state department of natural resources or fish and game agency before applying this product to public waters. Permits may be required before treating such waters.

## **Resistance Management**

Water bodies or management units should be scouted prior to application to identify the weed species present and their growth stage to determine if the intended application will be effective. Water bodies or management units should be scouted after application to verify that the treatment was effective.

Suspected resistant weeds may be identified by these indicators:

- Failure to control a weed species normally controlled by the product at the dose applied, especially if control is achieved on adjacent weeds;
- A spreading patch of non-controlled plants of a particular weed species; and
- Surviving plants mixed with controlled individuals of the same species.

Report any incidence of non-performance of this product against a particular weed species to your retailer, or local SePRO representative at 1-800-419-7779. If resistance is suspected, treat weed escapes with an herbicide having a different mechanism of action and/or use non-chemical means to remove escapes, as practical, with the goal of preventing further reproduction.

Implement the Early Detection, Rapid Response practice and Maintenance Control by using the following practices where possible:

- Identify weeds present in a management unit through scouting or history of the water body and understand the biology of target species.
- Applications should target weeds when populations are small and there is low biomass, early in the season to maximize efficacy.
- Applications should be made so that the herbicide contacts the weed. Use the appropriate application method for the use site/weed/chemical combination.

- Weed escapes should not be allowed to go to seed or produce asexual vegetative propagules.
- Use a diversified approach toward weed management. Whenever possible incorporate multiple weed-control practices such as mechanical control, biological management practices, and rotation of MOAs.
- Time applications to have the highest probability for control and minimize need for follow-up control measures. Apply during conditions that minimize herbicide degradation (light /temperature/microbes) and/or dissipation (water exchange).

Contact your local SePRO representative, local water management agency, or extension agent to find out if suspected resistant weeds to this MOA have been found in your region. If resistant biotypes of target weeds have been reported, use the application rates of this product specified or your local conditions. Tank mix products so that there are multiple effective mechanisms of actions for each target weed.

### **Restrictions**

- **DO NOT** apply this product directly to, or otherwise permit it to come into contact any desirable plants as injury may result.
- **DO NOT** apply in such a way that concentrated product comes in contact with crops, ornamentals, grass or other desirable plants.
- When treating aquaculture ponds when fish are present, **DO NOT** exceed a concentration of 0.4 ppm during any single application when targeting nuisance algae.
- Pilots must use an enclosed cab that meets the definition listed in the WPS for agricultural pesticides (40 CFR 170.305).

### **Precautions**

- Wash spray equipment thoroughly before and after each application.
- Contents may cause bluing where marcite plaster has been etched.

### **APPLICATION DIRECTIONS**

For aquatic weed control (including algae and vascular plants), do not exceed a concentration of 1.0 ppm copper (3 gallons of product or 2.74 lbs metallic copper per acre-foot) during any single application.

### **Whole Waterbodies**

Maximum annual application rate of 21.9 lbs of metallic copper per acre-foot (8 applications per year at up to 1 ppm). This rate/frequency is calculated based on staggering the treatment of each half of the water body every 14 days (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) for eight months (244 days). In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper in excess of 21.9 lbs of metallic copper per acre-foot (8 applications per year at up to 1 ppm).

### **Partial Waterbodies**

For large waterbodies such as lakes and reservoirs that support aquatic habitat, this product may be applied in multiple individual treatments to different, discreet sections of a waterbody, or water management units, within the 14-day retreatment interval, provided that the sum of those areas together constitute no more than half of the total area of the entire waterbody. Maximum annual application rate of 46.6 lbs. of metallic copper per acre-foot per year (17 applications per year at up to 1 ppm). This rate/frequency is calculated based on the maximum number of possible applications

allowed based on a 14-day minimum (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) retreatment interval for eight months (244 days). Do not apply more than 46.6 lbs. of metallic copper to a water management unit, regardless of the pest(s) targeted by applications. In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper in excess of 46.6 lbs. of metallic copper per acre-foot per year for a single water management unit.

### **Pre-Application Dose Determination**

For algae and aquatic plant treatments, applicators should conduct an initial dose determination test simulating a full scale treatment program to determine the minimum efficacious concentrations for eliminating the target species, unless an effective dose is already known for the given target pest population.

### **Surface Spray/Injection Algaecide Application**

For effective control, proper application rates should be maintained between 0.2 and 1.0 ppm. The application rates in Table 1 are based on static or minimal flow situations. Where significant dilution occurs from untreated waters or loss of water, this product may have to be metered in (refer to the *Drip System or Metering Pump Application for Flowing Water Treatments* section of this label) to maintain adequate exposure times.

Identify the algae growth present as one of the following types: planktonic (suspended), filamentous (matforming), or macrophytic algae (chara/nitella).

Determine the surface acreage (1 acre = 43,560 ft.<sup>2</sup>) and average depth of infested area. Refer to Table1 to determine gallons of this product to apply per surface acre.

**TABLE 1**  
**Application Rates**

Algae Type or Species	Dose	Rates	Treatment Comments
	PPM Copper	Gallons per Acre Foot	
Planktonic (Suspended)	0.2 - 1.0 <sup>†</sup>	0.6 - 3.0	Use lower rates for light infestations. Use higher rates on heavy blooms and where algae masses are clumped and accumulated.
Filamentous (Mat-forming)	0.2 - 1.0 <sup>†</sup>	0.6 - 3.0	Use lower rates for early season applications, light infestations or treatment of regrowth. Use higher rates on surface mats and species such as <i>Pithophora</i> , <i>Cladophora</i> , <i>Lyngbya</i> , and <i>Hydrodictyon</i> .
Macrophytic (Chara/Nitella/Starry Stonewort)	0.4 - 1.0	1.2 - 3.0	Use lower rates for new infestations or early season growth. Use higher rates on older, established calcified plants. Apply as close to plant growth as possible.

<sup>†</sup> For planktonic and filamentous algae, this product may be applied up to 1.0 ppm when growth conditions require higher rates and for difficult to control species.

For dense infestations of filamentous algae or where *Hydrodictyon*, *Cladophora* or *Pithophora* are present, apply the higher rate in the rate range. Filamentous algae species are easier to control before floating to the water's surface (when they are forming on the pond/lake bottom). An adjuvant, such as d-limonene or similar surfactant, may be added for enhanced control of floating mats or difficult to control species of algae. Follow surfactant labeling instructions for application rates and use directions.

For planktonic (suspended) algae and free floating filamentous algae mats, base application rates on treating to depths where algae are present (e.g. the upper 3 to 4 feet of water). For dense infestations and in certain other situations, it may be necessary to calculate rates based on the depth of known algae infestation (e.g. >4 feet) or require treating the entire water column in the target area. To calculate the application rate per surface acre, multiply the application rate in Table 1 (0.6 to 3.0 Gallon per Acre Foot) by the average depth of infestation, or average water depth if infestation reaches the entire water column.

As a surface or subsurface application, this product may be applied diluted or undiluted, whichever is most suitable to ensure uniform coverage of the area to be treated. Dilution with water may be necessary at the lower application rates. Dilute the required amount of product with enough water to ensure even distribution in the treated area with the type of equipment being used. For best results, dilute this product in water to provide a minimum spray mix of 20 to 50 gallons per acre; in areas with heavy infestations of filamentous algae, a total tank mix of >50 gallons per acre may be necessary; break up floating algae mats before spraying or while application is being made.

**Submersed Plant Control Applications**

This product can be applied to control hydrilla (*Hydrilla verticillata*), egeria (*Egeria densa*), and other aquatic weeds with susceptibility to copper. Apply at a rate to achieve 0.75 to 1.0 ppm copper (2.3 to 3.0 Gallons this product/Acre foot). In heavily infested areas, a second application after the 14 day retreatment interval may be necessary.

## Drip System or Metering Pump Application for Flowing Water Treatments

For use in potable water, canals, ditches, and irrigation and drainage systems.

For optimal control, apply this product as soon as algae begin active growth or interfere noticeably with normal delivery of water (clogging of lateral head gates, suction screens, weed screens, and siphon tubes). Delaying treatment could perpetuate the problem by causing massing and compacting of biomass. Heavy infestations and low flow may cause poor distribution resulting in unsatisfactory control. Under these conditions repeated applications or increasing water flow rate during application may be necessary.

Prior to treatment it is important to accurately determine water flow rates. In the absence of weirs, orifices, or similar devices, which give accurate waterflow measurements, volume of flow can be estimated by the following formula:

$$\text{Cubic feet per second (cfs)} = \text{average width (feet)} \times \text{average depth (feet)} \times \text{average velocity}^\dagger \text{ (feet/second)} \times 0.9$$

†: The velocity can be estimated by determining the length of time it takes a floating object to travel a defined distance. Divide the distance (feet) by the time (seconds) to estimate velocity (feet/seconds). This measure should be repeated 3 times at the intended application site and then used to calculate the average velocity.

After accurately determining the water flow rate in cfs or gallons/minute, find the corresponding this product rate in Table 2 or use the formula below.

$$\text{cfs} \times \text{desired concentration of metallic copper (ppm)} = \text{quarts/hour of application}$$

TABLE 2 Application Rates for Flowing Water				
Water Flow Rate		PPM Copper	This Product Drip Rate	
CFS	Gal/min.		Quart/ hr.	mL / min.
1	450	0.2 - 1.0	0.2 - 1.0	3.2 - 15.7
2	900	0.2 - 1.0	0.4 - 2.0	6.3 - 31.5
3	1,350	0.2 - 1.0	0.6 - 3.0	9.5 - 47.3
4	1,800	0.2 - 1.0	0.8 - 4.0	12.6 - 63.0
5	2,250	0.2 - 1.0	1.0 - 5.0	15.8 - 78.5
10	4,500	0.2 - 1.0	2.0 - 10.0	31.5 - 157.7
100	45,000	0.2 - 1.0	20 - 100.0	315 - 1,577

Calculate the amount of this product needed to maintain the drip rate for a treatment period of 3 hours by multiplying either:

$$\text{Quarts / hr} \times 3; \text{ Milliliters / Minute} \times 180; \text{ or Fluid ounces / Minute} \times 180.$$

Rates will target 1.0 ppm copper concentration in the treated water for the treatment period. Lower concentrations may be used on highly susceptible algae species or if longer exposure/injection times are maintained. Introduction of this product should be made in the channel at weirs or other turbulence-creating structures to promote the dispersion of the chemical. For injection periods longer than three hours, calculate the amount of this product needed by multiplying the rate by the desired time in minutes or hours, as appropriate.



Use a drum or tank equipped with a valve or other volume control device that can be calibrated to maintain a constant drip rate. Use a stopwatch and appropriate measuring container to set the desired drip rate. Readjust accordingly if the canal flow rate changes during the treatment period. A small pump or other metering device may be used to meter this product into the water more accurately. Application can be made using diluted or undiluted material.

Results can vary depending upon species and density of algae and vegetation, desired distance of control and flow rate, and impact of water quality on this product and efficacy. Periodic maintenance treatments may be required to maintain seasonal control (every 2 to 6 weeks). In addition, this product can be used in a rotational program with other herbicides labeled for flowing water for an integrated management approach. SePRO recommends consulting a SePRO Aquatic Specialist to determine optimal use rate, location of treatment stations and duration of treatment period under local conditions.

### **Pulse Application Method**

This method may only be used in constructed irrigation conveyance systems, laterals and aqueducts. Do not use this method of application in locations with functioning potable water intakes at or downstream from the application site.

For optimal control, apply as soon as algae begin active growth or interfere noticeably with normal delivery of water. Heavy infestations and low flow may cause poor distribution resulting in unsatisfactory control. Under these conditions repeated applications or increasing water flow rate during application may be necessary. Maximum annual application rate of 13 lbs metallic copper per year per 5 miles of conveyance per cubic foot per second (CSF). Apply product into irrigation conveyance system or lateral at up to a maximum rate of 0.5 lbs metallic copper (0.55 gallons of product) per cubic foot per second of water per 5 to 30-mile treatment depending on water hardness, alkalinity and algae concentration. High water hardness or alkalinity levels may require the use of higher rates within the rate range above to achieve control. When velocity levels are higher (>1 foot per second) distance between drop stations for pulse applications can be increased.

### **Chemigation System Application**

This product may be applied for the maintenance of chemigation systems. To control algae in chemigation systems this product should be applied continuously during water application. For continuous addition application apply 0.91 - 9.1 gallons of this product per 1,000,000 (one million) gallons of water (0.3 - 3.0 gallons of this product per acre-foot of water). This will produce a concentration of 0.1 to 1.0 ppm of copper. Refer to Table 3 to determine the amounts of this product to use in chemigation systems. Do not exceed 1.0 ppm of copper or 0.91 gallons of this product per 100,000 gallons of water. For additional guidance regarding specific calibrations or application techniques contact application equipment manufacturer, supplier, or pest control advisor. It is not necessary to agitate or dilute this product in the supply tank before application to chemigation systems.

**TABLE 3**  
**Application Rates for Chemigation Systems**

Copper Concentration (ppm)	Amount of This Product			
	Per Acre-foot		Per Million Gallons	
	Gallons	Liters	Gallons	Liters
0.1	0.3	1.1	0.9	3.4
0.2	0.6	2.3	1.8	6.8
0.3	0.9	3.4	2.8	10.6
0.4	1.2	4.5	3.7	14.0
0.5	1.5	5.7	4.6	17.4
0.6	1.8	6.8	5.5	22.8
0.7	2.1	7.9	6.4	24.2
0.8	2.4	9.1	7.3	27.6
0.9	2.7	10.2	8.3	31.4
1.0	3.0	11.3	9.1	34.4

***Chemigation System Application***

- Apply this product only through sprinkler and drip irrigation systems including: center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move; flood (basin), furrow, border or drip (trickle) systems.
- Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- If you have questions about calibration, contact your SePRO Aquatic Specialist, State Extension Service, equipment manufacturer, or other experts.
- Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place (refer to the *Chemigation Systems Connected to a Public Water Supply* section of this label).
- A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise. The injection system should be inspected, calibrated, and maintained before application of this product begins.

***Chemigation Systems Connected to a Public Water Supply***

- Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, back flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

- The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

### ***Sprinkler Chemigation Requirements***

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

### ***Floor (Basin), Furrow and Border Chemigation Requirements***

- Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from back flow if water flow stops.
- Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:
  - The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.
  - The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

### ***Drip (Trickle) Chemigation Requirements***

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

### **Tank Mixes**

This product may be mixed with other herbicides or algaecides registered for aquatic use provided that no labeling prohibits such mixing. It can be tank mixed with other herbicides to improve efficacy; and to control algae in areas where heavy algae growth may cover target submersed plant species and interfere with herbicide exposure. Do not exceed any labeled rate or dose of any of the products in the combination. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. To ensure compatibility, a jar test is recommended before field application of any tank mix combination. SePRO Corporation recommends consulting with a SePRO Aquatic Specialist for latest tank mix recommendations.

Tank mixing or use of this product with any other product which is not specifically listed on this product label shall be at the exclusive risk of the user, applicator and/or application adviser, to the extent allowed by applicable law.

### ***Captain and Endothall***

This product may be applied as a tank mix or simultaneously injected or used with the dipotassium salt of endothall (e.g. Cascade<sup>®</sup>) or the mono (N,N-dimethylalkylamine) salt of endothall (e.g. Teton<sup>®</sup>) to broaden the weed control spectrum and/or reduce injection times or rates in canals, ditches, and laterals. In flowing canals, apply this product via drip or injection at a rate of 0.1 to 1.0 ppm (See Table 2) in conjunction with Teton (0.05 – 2.0 ppm) or Cascade (0.35-3.0 ppm) for a minimum of one hour.

### ***Hydrilla Control – Captain + Diquat Tank Mix***

This product can be mixed with diquat (diquat dibromide) in a 2:1 ration of Captain:Diquat (e.g. 4 gallons this product and 2 gallons diquat [e.g. Littora<sup>®</sup>- 2 lbs a.i./gallon] per acre in waters with average depth of 4 feet). Lower rates of this product may also enhance the activity of diquat. This product should be applied at a minimum of 0.1 ppm in combination with diquat. Higher rates may be needed in areas with dense weeds.

## **Spray Drift Management**

### ***Aerial Applications***

- Do not release spray at a height greater than 10 ft above the vegetative canopy or water, unless a greater application height is necessary for pilot safety.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speed exceeds 15 mph at the application site. If the windspeed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.
- Applicators must use ½ swath displacement upwind at the downwind edge of the application area.
- Do not apply during temperature inversions.

### ***Ground Boom Applications***

- Apply with the spray release height recommended by the manufacturer, but no more than 4 feet above the water surface.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- Do not apply during temperature inversions.

## **Spray Drift Advisories**

The applicator is responsible for avoiding off-site spray drift. Be aware of nearby non-target sites and environmental conditions.

### ***Importance of Droplet Size***

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

### ***Controlling Droplet Size – Ground Boom***

- Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

### ***Controlling Droplet Size – Aircraft***

- Adjust Nozzles - Follow nozzle manufacturers recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

### ***Boom Height – Ground Boom***

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, the boom should remain level with the crop and have minimal bounce.

### ***Release Height - Aircraft***

Higher release heights increase the potential for spray drift. When applying aurally to crops, do not release spray at a height greater than 10 ft above the crop canopy, unless a greater application height is necessary for pilot safety.

### ***Shielded Sprayers***

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

### ***Temperature and Humidity***

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

### ***Temperature Inversions***

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or 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. Avoid applications during temperature inversions.

### ***Wind***

Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

## STORAGE AND DISPOSAL

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

**Pesticide Storage:** Store in a cool dry place. Do not store near feed or foodstuffs. In case of leak or spill, use absorbent materials to contain liquids and dispose in a manner consistent with the pesticide disposal instructions.

**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. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

### Container Handling

**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  $\leq$  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  $\frac{1}{4}$  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.

**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  $\frac{1}{4}$  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.

**Warranty Disclaimer:** SePRO Corporation warrants that this product conforms to the chemical description on the product label. Testing and research have also determined that this product is reasonably fit for the uses described on the product label. To the extent consistent with applicable law, SePRO Corporation makes no other express or implied warranty of fitness or merchantability nor any other express or implied warranty and any such warranties are expressly disclaimed.

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