

**This label both a commercial and residential use label.**

**Begin Commercial Use Label**

# Cutrine® Plus

COPPER	GROUP	<b>NOT CLASSIFIED</b>	HERBICIDE
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**ALGAECIDE / HERBICIDE / CYANOBACTERICIDE**

**ACTIVE INGREDIENT:**

Copper Ethanolamine Complex, Mixed (Mono CAS# 14215-52-2 and Tri CAS# 82027-59-6)*	27.9%
OTHER INGREDIENTS:	<u>72.1%</u>
TOTAL	100.0%

\*Metallic copper equivalent, 9%. Contains 0.909 lbs. of elemental copper per gallon.

**KEEP OUT OF REACH OF CHILDREN  
MANTÉNGASE FUERA DEL ALCANCE DE LOS NIÑOS**

## CAUTION

### FIRST AID

**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 to do so by a Poison Control Center or doctor.
- Do not give anything by mouth to an unconscious person.

**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 inhaled:**

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
- Call a Poison Control Center or doctor for further treatment advice.

Have the product container or label with you when calling a Poison Control Center or doctor or going for treatment.

**IN CASE OF EMERGENCY CALL INFOTRAC at 1-800-535-5053**

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION.** Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing.

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Mixers, loaders, applicators, and other handlers must wear the following:

- Long-sleeved shirt and long pants,
- Shoes and 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 the product's concentrate. Do not reuse them. Users must 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. Remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing. Wash outside of gloves before removing.

Potable water sources treated with copper this product may be used as drinking water only after proper additional potable water treatments.

#### 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 in sediment with repeated applications. Copper is a micronutrient, but its pesticidal application rate exceeds the amount of copper needed as a nutrient.

**Do not use in waters containing Koi and hybrid goldfish. Not intended for use in small volume, garden pond systems. 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 trout and other sensitive species of fish may be killed under such conditions if present.**

#### GENERAL INFORMATION

This product is a liquid copper-based formulation containing ethanolamine chelating agents to prevent the precipitation of copper with carbonates and bicarbonates in the water. This product effectively controls a broad range of algae including: **Planktonic** (suspended) forms such as the Cyanobacteria (*Microcystis*, *Anabaena* & *Aphanizomenon*), Green algae (*Raphidocelis* & *Cosmarium*) Golden algae (*Prymnesium parvum*) and diatoms (*Navicula* & *Fragilaria*); **Filamentous** (mat-forming) forms such as the Green Algae (*Spirogyra*, *Cladophora*, *Ulothrix* & *Rhizoclonium*) and **Benthic** (bottom-growing) forms such as *Chara* and *Nitella*. Waters treated with this product may be used for swimming, fishing, further potable water treatment, livestock watering or irrigating turf, ornamental plants or crops after treatment.

#### DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Read entire label and use strictly in accordance with precautionary statements and directions.

## **RESISTANCE MANAGEMENT**

Apply 76.8 oz. of product per acre-foot (0.54 pounds active ingredient per acre-foot).

Do not apply more than 51 gallons of product per acre-foot per year (46.2 pounds active ingredient per acre-foot per year). Do not apply more than 46.2 pounds active ingredient per acre-foot per year. Do not make applications less than 14 days apart.

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 herbicide-resistant weeds may be identified by these indicators:

- Failure to control weed species normally controlled by the herbicide 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 of this product against a particular weed species to your or call your SePRO representative. 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 mechanisms of action.
- 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).

Local resistant weeds:

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

## **AQUATIC USES:**

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 1/2 of the water body (excluding water infrastructure and constructed conveyances such as drainage

canals, ditches and pipelines or intakes and aqueducts for drinking water or irrigation use) to avoid depletion of oxygen due to decaying vegetation. Wait at least 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Application of algacides 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 trout and other sensitive species of fish may be killed under such conditions if present.

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.

To protect listed species in California, contact your County Agricultural Commissioner or refer to the Department of Pesticide Regulation's PRESCRIBE Internet Database:  
<http://www.cdpr.ca.gov/docs/endspec/precint.htm>.

#### **GENERAL APPLICATION RESTRICTIONS:**

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 these waters.

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 State or Tribe agency responsible for pesticide regulation.

Do not enter or allow others to enter until application of product has been completed.

#### **PRE-TREATMENT CONSIDERATIONS:**

In **Potable Water Reservoirs, Lakes, Industrial Ponds & Wastewater** or other monitored water systems, initial treatment with this product must be considered at the onset of nuisance bloom conditions as evidenced by initial taste and odor complaints; high cell counts or chlorophyll a concentrations; high MIB or geosmin concentrations; visible surface scum formations; low Secchi disk readings; significant daily fluctuations in dissolved oxygen; and/or sudden increases in pH. Monitoring of several of these parameters on a regular basis will assist in optimizing the timing of treatments and reducing the amounts of this product needed for seasonal control. Identification of primary nuisance species or genera may also be helpful in determining and refining dosage rates.

**Pre-Application Dose Determination:** For algae and aquatic plant treatments, applicators should conduct initial dose determination tests 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  
SLOW-FLOWING OR QUIESCENT WATER BODIES  
ALGAECIDE APPLICATION**

For effective control, proper chemical concentration must be maintained for a minimum of three hours contact time. The application rates in the chart are based on static or minimal flow situations. Where significant dilution or loss of water from unregulated inflows or outflows occur (raceways) within a three hour period, chemical may have to be metered in.

1. Identify the form of algae growth present as one of the following types: Planktonic (suspended), Filamentous (mat forming), or Benthic (Chara/Nitella) and estimate the density of growth (Low, Medium, High).
2. Use **Table 1** – Select dosage rates based on the algae form and density growth to determine **this product Dosage Rates**.

<b>Table 1 – Copper Concentration and Dosing Rates</b>									
<b>Form of Algal Growth</b>	<b>Low Density Growth</b>			<b>Medium Density Growth</b>			<b>High Density Growth</b>		
	ppm Copper	Gal per acre-ft.	Lbs. of copper per acre-ft.	ppm Copper	Gal per acre-ft.	Lbs. of copper per acre-ft.	ppm Copper	Gal per acre-ft.	Lbs. of copper per acre-ft.
Planktonic	0.2	0.6	0.54	0.4	1.2	1.09	0.6	1.8	1.63
Filamentous	0.2	0.6	0.54	0.6	1.8	1.63	0.8	2.4	2.18
Benthic	0.4	1.2	1.09	0.7	2.1	1.90	1.0	3.0	2.72

3. Calculate acre-feet within the intended treatment area (area of infestation) by measuring length, width plus averaging several depth readings within the treatment area. Use the formula:

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

4. Multiply Acre-Feet calculated in Step #3 times by the gal/acre-ft of this product selected from Step #2 to determine number of gallons of this product required for the treatment area.
5. Before applying, dilute the required amount of this product with enough water to ensure even distribution with the type of equipment being used. Typical dilution range is 9:1 when using hand-type sprayer or up to 50:1 when using water pump equipment or large tank sprayers.

**SPRAY DRIFT**

**Boat Boom Applications:**

- Apply with the spray release height recommended by the manufacturer, but no more than 4 feet above the water body.
- 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.

**MAXIMUM ANNUAL APPLICATION RATES**

**Direct treatment of 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).

**Direct treatment to localized area of waterbody or water management units:**

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.

**Aquaculture:**

Administer copper at a rate of 0.1 to 0.25 mg/L (0.34-0.68 lbs. metallic copper/acre-foot = 0.1 to 0.25 ppm). Monitor the copper concentration and when it falls below the desired concentration, apply additional copper to bring the concentration back up to the desired concentration. Copper can be applied once daily for 5 to 11 consecutive days. Do not apply to water for more than 11 days before waiting at least 14 days before retreating. Do not apply more than 46.6 lbs. metallic copper per acre-foot in one year.

**Catfish:**

Copper can be applied throughout the spring and summer when water temperatures are consistently above 70°F when total alkalinity and hardness concentrations fall between 100 and 300 mg/L as CaCO<sub>3</sub>. Applications are no longer needed in the fall after fish are harvested or the average water temperatures fall below 70°F. Apply mid-morning at a rate of 0.34 lbs. metallic copper per acre-foot (0.1 ppm metallic copper). Place copper crystals in a cloth bag and then put the filled bag into another cloth bag to slow the rate at which the copper dissolves. Suspend the double bagged unit of copper about 20 feet in front of a paddlewheel aerator. Run the aerator until all the copper sulfate is dissolved; this usually requires an hour or two. Use copper only if you plan to harvest fish before fall and anticipate problems with off-flavoring algae. Do not make routine copper treatments for algae control in fingerling ponds or in broodfish ponds because off-flavors are not a problem in those fish. Do not use this treatment regimen in waters of low hardness and alkalinity (less than 50 ppm as CaCO<sub>3</sub>) because copper may stress or kill fish. Water molds on catfish eggs are treated inside the hatchery in a similar manner using a flow-through hatching trough. For a 4 to 5-day period, treat eggs at a rate of 6.8 lbs. metallic copper per acre-foot (2.5ppm).

**Mussels:**

For treatments to whole waterbodies, administer copper at a rate of up to 1 ppm (2.74 lbs. metallic copper/acre-foot) at a maximum annual rate of 21.9 lbs. metallic copper per acre foot. Monitor the copper concentration and when it falls below the desired concentration, apply additional copper to bring the concentration back up to the desired concentration. Monitor mussel populations and terminate the additional applications once mussels are dead or 14 days have passed since the initial application. Wait at least 14 days after the last application before making any additional applications.

**OTHER TREATMENT FACTORS AND CONSIDERATIONS**

- Calm and sunny conditions when water temperature is at least 60 F will usually expedite control

results.

- Effective control of algae requires direct contact with all cells throughout the water column, since these plants do not have vascular systems to transport copper from cell to cell.
- Visible reduction in algae growth should be observed in 24 to 48 hours following application with full infestation and water temperatures.

**CUTRINE®-PLUS Granular Algaecide** may be used as an alternative in low volume flow situations, spottreatments or treatment of bottom-growing algae in deep water.

**HERBICIDE APPLICATION (For Hydrilla Control):**

This product can control Hydrilla verticillata at copper concentrations of 0.4 to 1.0 ppm. Choose the application rate based upon stage and density of growth and respective water depth from the chart below.

Form of Algal Growth	Low Density Growth			Medium Density Growth			High Density Growth		
	ppm Copper	Gal per acre-ft	Lbs of copper per acre-ft	ppm Copper	Gal per acre-ft	Lbs of copper per acre-ft	ppm Copper	Gal per acre-ft	Lbs of copper per acre-ft
Planktonic	0.2	0.6	0.54	0.4	1.2	1.09	0.6	1.8	1.63
Filamentous	0.2	0.6	0.54	0.6	1.8	1.63	0.8	2.4	2.18
Benthic	0.4	1.2	1.09	0.7	2.1	1.90	1.0	3.0	2.72

\* Application rates for depths greater than six feet may be obtained by adding the rates given for the appropriate combination of depths.

**TANK MIXING**

On waters where enforcement of use restrictions for recreational, domestic and irrigation uses are acceptable, the following mixture can be used as an alternative Hydrilla control method.

Tank mix 3 gallons of this product with 2 gallons of Harvester® Landscape and Aquatic Herbicide. Apply mixture at the rate of 5 gallons per surface acre. Dilute with at least 9 parts water and apply as a surface spray or underwater injection. Observe all cautions and restrictions on the labels of both products used in this mixture.

**FLOWING WATER**

**DRIP SYSTEM APPLICATION - FOR USE IN POTABLE WATER AND IRRIGATION CONVEYANCESYSTEMS**

**PRE-TREATMENT CONSIDERATIONS**

In Crop and Non-Crop Irrigation Conveyance Systems: Ditches Canals & Laterals, This product treatments must be applied as soon as algae or aquatic vascular plants begin to interfere noticeably with normal delivery of water (clogging of lateral headgates, suction screens, weed screens and siphon tubes). Delaying treatment could perpetuate the problem causing massing and compacting of plants. Heavy infestations and low flow conditions may require increasing water flow rate during application.

Accurately determine water flow rates. In the absence of weirs, orifices, or similar devices which give accurate water flow measurements, volume of flow may be estimated by the following formula:

$$\text{Average Width (feet)} \times \text{Average Depth (feet)} \times \text{Velocity* (feet/second)} \times 0.9 = \text{Cubic Feet per Second (C.F.S.)}$$

\*Velocity is the time it takes a floating object to travel a given distance. Dividing the distance traveled (feet) by the time (seconds) will yield velocity (feet/second). Repeat this measurement at

least three times at the intended application site then average.

- After accurately determining the water flow rate in C.F.S. or gallons/minute, find the corresponding this product drip rate on the chart below.

WATER FLOW RATE		PRODUCT DRIP RATE*		
C.F.S.	Gal/Min	Qts/Hr	MI/Min.	FL.Oz./Min
1	450	1	16	0.5.
2	900	2	32	1.1
3	1350	3	47	1.6
4	1800	4	63	2.1
5	2250	5	79	2.7

- Calculate the amount of this product needed to maintain the drip rate for a period of 3 hours by multiplying Qts./Hr. x 3; ml/Min. x 180; or Fl. Oz./Min. x 180. Dosage will maintain 1.0 ppm Copper concentration in the treated water for the 3 hour period. Introduction of the chemical should be made in the channel at weirs or other turbulence-creating structures to promote the dispersion of chemical.
- Pour the required amount of this product into a drum or tank equipped with a brass needle valve and constructed to maintain a constant drip rate. Use a stopwatch and appropriate measuring container to set the desired drip rate. Readjust accordingly if flow rate changes during the 3 hour treatment period. Distance of control obtained down the waterway will vary depending upon density of vegetation growth. Treatment period may have to be extended up to 6 hours in areas where control may be difficult due to high flows or significant growth. Periodic maintenance treatments may be required to maintain seasonal control.

#### **Algae and weeds in irrigation systems via “slug” delivery:**

Maximum annual application rate of 13 lbs. metallic copper per year per 5 miles of conveyance. Apply copper into irrigation conveyance system or lateral at up to a maximum rate of 0.5 lbs. metallic copper per cubic foot per second of water per 5 to 30-mile treatment depending on water hardness, alkalinity and algae concentration.

This method may only be used in constructed irrigation conveyance systems, laterals and aqueducts.

#### **Watercress:**

For applications made to watercress, production fields must be drained of water at least 24 hours prior to each application and water must not be reapplied to the field for a minimum of 24 hours following each application.

Copper must not to be applied to watercress during the aquatic production phase.

#### **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 0.60 – 3.0 gallons of this product per 1,000,000 (one million) gallons of water (1.80 - 9.0 gallons of this product per acre-foot of water). The copper concentration range is 0.20 to 1.0 ppm. Do not exceed 1.0 ppm of copper or 2.75 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.

<b>Application Rates of This Product for Chemigation Systems</b>		
<b>Copper Concentration (ppm)</b>	<b>Gal /A-ft</b>	<b>Lbs. Cu / A-ft</b>
0.2	0.60	0.54
0.3	0.90	0.81
0.4	1.20	1.09
0.5	1.50	1.36
0.6	1.80	1.63
0.7	2.10	1.90
0.8	2.40	2.18
0.9	2.70	2.45
1.0	3.00	2.72

- Apply 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 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 Applied Biochemists, 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).
- Trained personnel, 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 system should be inspected, calibrated, and maintained before product application begins.

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

- Public water system is 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 backflow of solution 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 in use and capable of being fitted with a system interlock.
- Inspect, calibrate and maintain the system before product application.

### **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 backflow of solution 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 drift would extend beyond the area intended for treatment.

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

- Gravity Flow Systems 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.
- Pressurized water systems with a 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 backflow of solution 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 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 backflow of solution 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.

### **Submersed Plant Control Applications**

This product can be applied to control hydrilla (*Hydrilla verticillata*), egeria (*Egeria densa*), and other aquatic weeds susceptible to copper treatment. Apply at a rate to achieve 0.70 to 1.0 ppm copper (3.72 to 5.32 Gallons/Acre foot or 1.90 to 2.72 Lbs. Cu/Acre-foot). In heavily infested areas, a second application after the 14-day retreatment interval may be necessary.

### **STORAGE & DISPOSAL:**

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

**PESTICIDE STORAGE:** Keep container closed when not in use. Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Do not contaminate feed, feedstuffs, or drinking water. Do not store or transport near feed or food.

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

*[(For ≤5 gallon non-refillable containers)]*

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse container. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. 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. Then offer for recycling or reconditioning if available or puncture and dispose of in approved landfill. Consult Federal, State or local authorities for approved alternative procedures.]

*[(For >5 gallon non-refillable containers)]*

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse container. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ with water and recap. 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 container on its 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. Then offer for recycling or reconditioning if available or puncture and dispose of in approved landfill. Consult Federal, State or local authorities for approved alternative procedures.]

*[(For Nonrefillable Plastic and Metal Containers, e.g., Intermediate Bulk Containers [IBC] (Size or Shape Too Large to be Tipped, Rolled or Turned Upside Down))*

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying the contents from this container into application equipment or mix tank and before final disposal using the following pressure rinsing procedure. Insert a lance fitted with a suitable tank cleaning nozzle into the container and ensure that the water spray thoroughly covers the top, bottom and all sides inside the container. The nozzle manufacturer generally provides instructions for the appropriate spray pressure, spray duration and/or spray volume. If the manufacturer's instructions are not available, pressure rinse the container for at least 60 seconds using a minimum pressure of 30 PSI with a minimum rinse volume of 10% of the container volume. Drain, pour or pump rinsate into application equipment or rinsate collection system. Repeat this pressure rinsing procedure two more times. Then, for Plastic Containers, offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration. For Metal Containers, offer for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.]

*[(For refillable totes)*

**CONTAINER DISPOSAL:** Refillable container. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill container about 10 percent full with water. Agitate vigorously or recirculate water with pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat rinsing procedure two more times. Then offer for recycling or reconditioning if available or puncture and dispose of in approved landfill. Consult Federal, State or local authorities for approved alternative procedures.

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FPL20191118

**End Commercial Use Label**

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

## Begin Residential Use Label

# Citrine<sup>®</sup> Plus

COPPER	GROUP	NOT CLASSIFIED	HERBICIDE
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## ALGAECIDE

[FOR USE IN: LAKES; POTABLE WATER RESERVOIRS; PONDS; FISH HATCHERIES AND RACEWAYS]

### ACTIVE INGREDIENT:

Copper Ethanolamine Complex, Mixed  
(Mono CAS# 14215-52-2 and Tri CAS# 82027-59-6)\* ..... 27.9%

**OTHER INGREDIENTS:** ..... 72.1%

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

\*Metallic copper equivalent, 9%. Contains 0.909 lbs. of elemental copper per gallon.

**KEEP OUT OF REACH OF CHILDREN**

**MANTÉNGASE FUERA DEL ALCANCE DE LOS NIÑOS**

## CAUTION

### FIRST AID

#### 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 to do so by a Poison Control Center or doctor.
- Do not give anything by mouth to an unconscious person.

#### 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 inhaled:

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
- Call a Poison Control Center or doctor for further treatment advice.

Have the product container or label with you when calling a Poison Control Center or doctor, or going for treatment.

**IN CASE OF EMERGENCY CALL INFOTRAC at 1-800-535-5053.**

## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION.** Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing.

#### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Mixers, loaders, applicators, and other handlers must wear the following:

- Long-sleeved shirt and long pants,
- Shoes and 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 the product's concentrate. Do not reuse them. Users must 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. Remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing. Wash outside of gloves before removing.

Potable water sources treated with copper this product may be used as drinking water only after proper additional potable water treatments.

#### 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 in sediment with repeated applications. Copper is a micronutrient, but its pesticidal application rate exceeds the amount of copper needed as a nutrient.

**Do not use in waters containing Koi and hybrid goldfish. Not intended for use in small volume, garden pond systems. 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 trout and other sensitive species of fish may be killed under such conditions if present.**

#### GENERAL INFORMATION

This product is a liquid copper-based formulation containing ethanolamine chelating agents to prevent the precipitation of copper with carbonates and bicarbonates in the water. This product effectively controls a broad range of algae including: **Planktonic** (suspended) forms such as the Cyanobacteria (*Microcystis*, *Anabaena* & *Aphanizomenon*), Green algae (*Raphidocelis* & *Cosmarium*) Golden algae (*Prymnesium parvum*) and diatoms (*Navicula* & *Fragilaria*); **Filamentous** (mat-forming) forms such as the Green Algae (*Spirogyra*, *Cladophora*, *Ulothrix* & *Rhizoclonium*) and **Benthic** (bottom-growing) forms such as *Chara* and *Nitella*. Waters treated with this product may be used for swimming, fishing, further potable water treatment, livestock watering or irrigating turf, ornamental plants or crops after treatment.

#### DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Read entire label and use strictly in accordance with precautionary statements and directions.

## **RESISTANCE MANAGEMENT**

Apply 76.8 oz. of product per acre-foot (0.54 pounds active ingredient per acre-foot).

Do not apply more than 51 gallons of product per acre-foot per year (46.2 pounds active ingredient per acre-foot per year). Do not apply more than 46.2 pounds active ingredient per acre-foot per year. Do not make applications less than 14 days apart.

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 herbicide-resistant weeds may be identified by these indicators:

- Failure to control weed species normally controlled by the herbicide 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 of this product against a particular weed species to your SePRO representative. 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 mechanisms of action.
- 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).

Local resistant weeds:

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

## **AQUATIC USES:**

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 1/2 of

the water body (excluding water infrastructure and constructed conveyances such as drainage canals, ditches and pipelines or intakes and aqueducts for drinking water or irrigation use) to avoid depletion of oxygen due to decaying vegetation. Wait at least 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Application of algacides 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 trout and other sensitive species of fish may be killed under such conditions if present.

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.

To protect listed species in California, contact your County Agricultural Commissioner or refer to the Department of Pesticide Regulation's PRESCRIBE Internet Database:

<http://www.cdpr.ca.gov/docs/endspec/prescint.htm>

#### **GENERAL APPLICATION RESTRICTIONS:**

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 these waters.

Do not apply this product in a way that will contact adults, children, or pets, either directly or through drift. Some states may require permits for the application of this product to public waters. Check with your local authorities. Do not enter or allow others to enter until application of product has been completed.

#### **PRE-TREATMENT CONSIDERATIONS:**

Start treatment when visible, actively growing algae and susceptible plants appear in spring, preferably before significant surface accumulations occur. Aeration and/or fountain system, where available, should be in operation at the time of treatment.

**Pre-Application Dose Determination:** For algae and aquatic plant treatments, applicators should conduct initial dose determination tests 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.

#### **ALGAECIDE APPLICATION:**

1. Identify the form of algae growth present as one of the following types: Planktonic (suspended), Filamentous (mat forming), or Benthic (Chara/Nitella) and estimate the density of growth (Low, Medium, High).



- Use **Table 1** – Select dosage rates based on the algae form and density growth to determine this product **Dosage Rates**.

<b>Form of Algal Growth</b>	<b>Low Density Growth</b>			<b>Medium Density Growth</b>			<b>High Density Growth</b>		
	ppm Copper	Gal per acre-ft.	Lbs. of copper per acre-ft.	ppm Copper	Gal per acre-ft.	Lbs. of copper per acre-ft.	ppm Copper	Gal per acre-ft.	Lbs. of copper per acre-ft.
Planktonic	0.2	0.6	0.54	0.4	1.2	1.09	0.6	1.8	1.63
Filamentous	0.2	0.6	0.54	0.6	1.8	1.63	0.8	2.4	2.18
Benthic	0.4	1.2	1.09	0.7	2.1	1.90	1.0	3.0	2.72

- Calculate acre-feet within the intended treatment area (area of infestation) by measuring length, width plus averaging several depth readings within the treatment area. Use the formula:

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

- Multiply Acre-Feet calculated in Step #3 times by the gal/acre-ft of this product selected from Step #2 to determine number of gallons of this product required for the treatment area.
- Before applying, dilute the required amount of this product with enough water to ensure even distribution with the type of equipment being used. Typical dilution range is 9:1 when using hand-type sprayer or up to 50:1 when using water pump equipment or large tank sprayers.

## **MAXIMUM ANNUAL APPLICATION RATE**

### **Direct treatment of 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).

### **Direct treatment to localized area of waterbody or water management units:**

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.

## **OTHER TREATMENT FACTORS AND CONSIDERATIONS**

- Calm and sunny conditions when water temperature is at least 60°F will usually expedite control results.
- Effective control of algae requires direct contact with all cells throughout the water column, since these plants do not have vascular systems to transport copper from cell to cell.

- Visible reduction in algae growth should be observed in 24 to 48 hours following application with full infestation and water temperatures.
- Re-treat areas if re-growth or new growth begins to appear and seasonal control is desired. Identify new growth to re-check required copper concentration that may be needed for control.

**CUTRINE® PLUS Granular Algaecide** may be used as an alternative in low volume flow situations, spottreatments or treatment of bottom-growing algae in deep water.

**STORAGE & DISPOSAL:**

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited.

**PESTICIDE STORAGE:** Keep container closed when not in use. Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Do not contaminate feed, feedstuffs, or drinking water. Do not store or transport near feed or food.

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

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse container. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. 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. Then offer for recycling or reconditioning if available or puncture and dispose of in approved landfill. Consult Federal, State or local authorities for approved alternative procedures.

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