

ALLIGARE

8% COPPER

Specimen Label

ALGAECIDE

For use in Fresh Water Lakes, Potable Water Reservoirs, Ponds (including Golf Course Ponds), Fish Hatcheries, Irrigation Ditches, and Other Such Slow Moving or Quiescent Bodies of Water

Water treated with Alligare 8% Copper can be used immediately for recreational activities, for drinking, for watering livestock, and for irrigation of crops, golf courses, ornamental plantings, and turf areas.

ACTIVE INGREDIENT:

Copper Triethanolamine Complex (CAS No. 82027-59-6)* 26.49%
OTHER INGREDIENTS: 73.51%

TOTAL: 100.00%
 *Metallic copper equivalent, 8%

EPA Reg. No. 81927-52

EPA Est. No. 37429-GA-002⁵⁰
 81927-AL-001^{PM}; 37429-GA-001^{BT}

Letter(s) in lot number correspond(s) to superscript in EPA Est. No.

KEEP OUT OF REACH OF CHILDREN

CAUTION

Manufactured for:
 Alligare, LLC
 13 N. 8th Street
 Opelika, AL 36801

FIRST AID	
IF SWALLOWED:	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
IF INHALED:	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
IF IN EYES:	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For emergency information concerning this product, call the National Pesticides Information Center (NPIC) at 1-800-858-7378 seven days a week, 6:30 am to 4:30 pm Pacific Time or your poison control center at 1-800-222-1222.	

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION

Harmful if swallowed or absorbed through the skin. Avoid breathing vapor or spray mist. Avoid contact with skin, eyes or clothing. Prolonged or frequently repeated skin contact can cause allergic reaction in some individuals. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco or using toilet. Remove and wash contaminated clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

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

- Long-sleeved shirt,
- Long pants,
- Chemical-resistant gloves made of any waterproof material,
- Shoes plus socks

USER SAFETY REQUIREMENTS

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. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

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 has been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

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.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and aquatic invertebrates. 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 algae and weeds. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, do not treat more than 1/2 of the water body 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. 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.

Certain water conditions including low pH (≤ 6.5), low dissolved organic carbon (DOC) levels (3.0 ng/L or lower), and "soft" waters (i.e., alkalinity less than 50 mg/L), increases the potential acute toxicity to non-target aquatic organisms.

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers are allowed in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Alligare 8% Copper is for the application to fresh water lakes, potable water reservoirs, ponds (including golf course ponds), fish hatcheries, irrigation canals, laterals, and ditches and other such slow moving or quiescent bodies of water. Alligare 8% Copper successfully controls diverse algal types including branched, filamentous, and planktonic species. To obtain optimal control, apply Alligare 8% Copper in accordance with label directions at the first appearance of algae bloom. Water treated with Alligare 8% Copper must be used immediately to irrigate crops, golf courses, ornamental plants, and turf areas.

Surface applications of Alligare 8% Copper must be made using a land-based sprayer, or spray boat. Weighted trailing hoses are required for subsurface applications. Where appropriate, Alligare 8% Copper must be applied as an invert emulsion, or as an admixture with a suitable polymer, (see specific instructions, and select only adjuvants approved for application in food crop production).

Decomposition of dead plant material will result in dissolved oxygen depletion and subsequent fish kill. High water temperatures and dense weed infestation are exacerbating factors. To avoid excess oxygen depletion and fish kill, treat no more than 1/2 of the water body at one time. Do not apply more Alligare 8% Copper than required for the treatment area, and allow at least 14 days before making application to the remaining portion of the water body. Avoid trapping fish between the shoreline and treatment areas by treating from the shore outward toward deeper, untreated water.

Algae in the water column or on the weed surfaces can reduce the effectiveness of aquatic herbicides against *Hydrilla verticillata* and other vascular weeds. Unless specifically prohibited by the mix partner label, Alligare 8% Copper can be tank mixed with products containing the active ingredients, copper, fluridone, diquat and endothal, to improve aquatic weed control. If a product is tank mixed with Alligare 8% Copper, the more stringent requirements of the Alligare 8% Copper and mix partner labels must be met.

NOTE: Alligare 8% Copper and solutions of Alligare 8% Copper with cupric ion concentrations in excess of 1.0 ppm can cause non target plant injury. Do not allow sprays to drift over crops, ornamentals, grass or other desirable plants. Observe all label restrictions.

SPRAY DRIFT MANAGEMENT

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and method of application (e.g., ground, aerial, airblast, chemigation) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

Droplet Size

Apply only as a medium or coarser spray (ASAE standard 572) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.

ALLIGARE 8% COPPER

Specimen Label

Wind Speed

Do not apply at wind speeds greater than 15 mph. Only apply this product if the wind direction favors on-target deposition (approximately 3 to 10 mph), and there are no sensitive areas within 250 feet downwind.

Temperature Inversions

If applying at wind speeds less than 3 mph, the applicator must determine if a) conditions of temperature inversion exist, or b) stable atmospheric conditions exist at or below nozzle height. Do not make applications into areas of temperature inversions or stable atmospheric conditions.

Other State and Local Requirements

Applicators must follow all state and local pesticide drift requirements regarding application of copper compounds. Where states have more stringent regulations, they must be observed.

Equipment

All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

Additional requirements for aerial applications:

- The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.
- Release spray at the lowest height consistent with efficacy and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.
- When applications are made with a crosswind, the swath must be displaced downwind. The applicator must compensate for this displacement at the up and downwind edge of the application area by adjusting the path of the aircraft upwind.

Additional requirements for ground boom application:

- Do not apply with a nozzle height greater than 4 feet above the crop canopy.

ALGAE CONTROL

See Table 1 for a listing of indigenous algae, diatom, and protozoa genera controlled by Alligare 8% Copper. Control of free floating genera is obtained at rates equivalent to 0.2 to 0.5 ppm metallic copper. Control of mat forming genera requires rates equivalent to 0.5 to 1.0 ppm metallic copper. Hard to control genera such as *Chara* and *Phormidium* require a rate of 0.5 to 1.0 ppm metallic copper to be applied at the first signs of algal growth. The lower ends of the required ranges can be used in soft water and low growth situations. Higher rates within the required ranges must be used in situations of hard water or high algal growth. Always consult your State Fish and Game Agency or other responsible agency before applying this product to public waters.

Best results are obtained when Alligare 8% Copper is applied at the first appearance of algae and when water temperatures are above 60°F. Apply under calm conditions in a manner that uniformly distributes Alligare 8% Copper throughout the treated area.

Alligare 8% Copper must be applied directly, but a 10 to 20 fold dilution of Alligare 8% Copper with water facilitates uniform application. Large mats of floating algae must be removed prior to treatment, and a second application at least 2 weeks following the initial treatment are required in areas of dense algae growth.

Table 1. Copper Levels Required for Control of Different Genera of Algae

ORGANISM	0.2 - 0.5 ppm COPPER		0.5 - 1.0 ppm COPPER	
Cyanophyceae (Blue-Green algae)	<i>Anabaena</i>	<i>Microcystis</i>	<i>Calothrix</i>	<i>Phormidium</i>
	<i>Aphanizomenon</i>	<i>Oscillatoria</i>	<i>Nostoc</i>	<i>Symploca</i>
	<i>Cylindrospermum</i>	<i>Plectonema</i>		
	<i>Gloetrichia</i>	<i>Polycystis</i>		
	<i>Gomphosphaeria</i>			
Chlorophyceae (Green algae)	<i>Botryococcus</i>	<i>Hydrodictyon</i>	<i>Ankistrodesmus</i>	<i>Nitella</i>
	<i>Closterium</i>	<i>Microspora</i>	<i>Chara</i>	<i>Oocystis</i>
	<i>Coelastrum</i>	<i>Spirogyra</i>	<i>Chlorella</i>	<i>Palmella</i>
	<i>Draparnaldia</i>	<i>Tribonema</i>	<i>Cladophora</i>	<i>Pithophora</i>
	<i>Enteromorpha</i>	<i>Ulothrix</i>	<i>Crucigenia</i>	<i>Scenedesmus</i>
	<i>Gloecystis</i>	<i>Zygnema</i>	<i>Desmidium</i>	<i>Staurastrum</i>
			<i>Golenkinia</i>	<i>Tetraedron</i>
Diatomaceae (Diatoms)	<i>Asterionella</i>	<i>Nitzschia</i>	<i>Achnanthes</i>	
	<i>Fragilaria</i>	<i>Stephanodiscus</i>	<i>Cymbella</i>	
	<i>Gomphonema</i>	<i>Synedra</i>	<i>Neidium</i>	
	<i>Melosira</i>	<i>Tabellaria</i>		
	<i>Navicula</i>			
Protozoa (Flagellates)	<i>Ceratium</i>	<i>Mallomonas</i>	<i>Chlamydomonas</i>	<i>Pandorina</i>
	<i>Cryptomonas</i>	<i>Synura</i>	<i>Eudorina</i>	<i>Peridinium</i>
	<i>Dinobryon</i>	<i>Uroglena</i>	<i>Hawmatococcus</i>	
	<i>Euglena</i>	<i>Volvox</i>		
	<i>Glenodinium</i>			

Table 2 gives the amount of Alligare 8% Copper required to achieve a desired copper concentration in quiescent or slow moving waters as a function of water depth. This target concentration must be maintained for a minimum of 3 hours to achieve optimal algae control. In moving water, where flow will result in significant reduction of copper ion within 3 hours of treatment, application of Alligare 8% Copper through a metering system is required (See instructions for Drip System Application below).

Table 2. Application Rates for Quiescent or Slow Moving Water

Average Depth of Water of Treatment Site (feet)	Gallons of Alligare 8% Copper per Surface Acre to Achieve the Desired Copper Concentration		
	0.2 ppm Cu	0.5 ppm Cu	1.0 ppm Cu
1	0.7	1.7	3.4
2	1.4	3.4	6.8
3	2.0	5.1	10.2
4	2.7	6.8	13.6

STRATIFIED LAKES (Summer Application) – Lakes known to be stratified require treatment of the upper 6 feet of water only.

NON-STRATIFIED LAKES (Spring/Fall Application) – Non-stratified lakes require treatments based on the total water depth. To avoid adverse effects on fish population, treat no more than ½ of the water body at a time.

METHODS OF APPLICATION

SURFACE APPLICATION: Surface applications are appropriate for shallow depths of 4 feet or less. Use a diluted spray mixture and apply evenly across the surface of the water from a boat or from shore.

SUBSURFACE APPLICATION: Subsurface applications of Alligare 8% Copper are required for water depths exceeding 4 feet. Weighted trailing hoses must be set to deliver the required rate of Alligare 8% Copper to zones containing dense algae populations. Subsurface application can be used for direct or invert applications of Alligare 8% Copper. Avoid dragging the hoses on the bottom.

POLYMER APPLICATION: Spray sinking, deposition, and retention can be improved by addition of a polymer to Alligare 8% Copper itself or to a dilution of Alligare 8% Copper in water. Follow the requirements on the polymer product label governing the use of that product in algae control.

INVERT EMULSIONS: Alligare 8% Copper must be applied alone or in combination with aquatic herbicides (see below) in an invert emulsion. Inverts are not suited for surface application and must be applied subsurface through submerged, weighted trailing hoses. Do not drag hoses on the bottom.

DRIP SYSTEM APPLICATION

FOR USE IN IRRIGATION CONVEYANCE SYSTEMS AND OTHER MOVING WATER

In irrigation systems, application must be made prior to appearance of algae. Delayed treatment can allow growth of algae mats that can impede the flow and delivery of water through obstruction of system components including lateral headgates, pumps, pumping systems, screens, and siphon tubes. It can be necessary to increase water flow rates during treatment to achieve good chemical distribution and effective algae control.

Application rates are calculated based on water flow rate in cubic feet per second. Prior to application of Alligare 8% Copper, determine the system flow rate using devices which give accurate water flow measurements (e.g., weirs, or orifices). Lacking these devices, the rate of flow can be estimated by the following formula:

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

Velocity can be estimated by measuring the time it takes a floating object to travel a pre-determined distance down the middle of the canal. Velocity (feet/second) is then the distance traveled (feet) divided by the time (seconds) required. The average velocity is the arithmetic mean of the results obtained from a minimum of three individual velocity measurements. Use this average velocity (feet/second) in the formula above to determine the flow rate (C.F.S.).

Once the flow rate is known, the appropriate Alligare 8% Copper drip rate can be read from Table 3.

Table 3. Application Rates for Moving Water

WATER FLOW RATE		ALLIGARE 8% COPPER DRIP RATE (to give 1.0 ppm Cu)		
C.F.S.	GAL/MIN.	QTS./HR.	mL/MIN.	FL. OZ./MIN.
1	500	1.25	20	0.7
2	1000	2.50	40	1.3
3	1500	3.75	60	2.0
4	2000	5.00	80	2.3
5	2500	6.25	100	3.3

Determining Amount of Alligare 8% Copper: The rates shown in Table 3 will produce a concentration of 1.0 ppm Cu⁺⁺ in treated water. The target copper concentration is obtained by multiplying the rate value read from the table by the target concentration in ppm. As it is necessary to maintain the target application rate for a minimum of 3 hours (180 minutes), the minimum amount of Alligare 8% Copper needed to achieve effective control is calculated multiplying the adjusted Qts./Hr. rate by 3, the adjusted mL/Min. rate by 180; or adjusted Fl. Oz./Min. rate by 180. Apply Alligare 8% Copper in the channel at weirs or other turbulence creating structures or at several injection points across the flow to ensure thorough mixing and uniform dispersion.

Calibrating For Drip Application (Gravity Feed): Add the amount of Alligare 8% Copper required for 3 hours treatment (as calculated above) to a drum or tank equipped with an adjustable constant flow valve. Adjust the flow rate to the target value by dripping the Alligare 8% Copper into a clean graduated container while measuring the time required to reach a given volume. Several iterations can be necessary to achieve the target flow. Alligare 8% Copper captured during the valve calibration can be returned to the tank. **NOTE:** It can be

ALLIGARE 8% COPPER

Specimen Label

necessary to readjust the constant flow valve if the drip rate changes during the 3 hour treatment period. If electricity is available, a small adjustable metering pump can be used as a more accurate means of introducing Alligare 8% Copper into the water.

The severity of algae infestation will dictate the distance that algae control will extend from the application point. Any subsequent applications must be made at points 3 hours downstream from the prior point of application. This step can be repeated as necessary until the entire infested area has been treated. Season long control can require periodic retreatment.

HYDRILLA VERTICILLATA CONTROL

Unless specifically prohibited by the mix partner label, Alligare 8% Copper can be tank mixed with Current, or with aquatic herbicide products containing diquat as the active ingredient. In these mixtures Alligare 8% Copper kills algae covering *Hydrilla* and thereby interfering with herbicide absorption. If a product is tank mixed with Alligare 8% Copper, the more stringent requirements of the Alligare 8% Copper and mix partner labels must be met. Table 4 gives example directions for tank mixes of Alligare 8% Copper with diquat based products. The complete effect of these treatments will take 8-12 weeks to develop. In cases of dense weed growth, a second application can be necessary after 12 weeks.

Table 4. Example Tank Mixes of Alligare 8% Copper

Mix Partner	Amount of Mix Partner	Amount of Alligare 8% Copper	Amount of Water	Additive	Rate	Application Method
1. Diquat (35.3%) ^{1,2}	1-2 gal. ³	1.7 – 3.4 gal. ⁴	100 gal.	Invert emulsion carrier ⁵	Per A – foot	Surface Spray or subsurface injection, or bottom placement ⁶
2. Current (8% Cu)	3.34 gal.	1.7 – 3.4 gal. ⁵	10 – 20 gal.		Per A – foot	Surface spray or subsurface injection ⁷

¹Make applications in bright sunlight when water is above 60°F.

²In heavily infested areas, a second application after 12 weeks can be necessary.

³See the diquat product label for actual diquat application rate.

⁴Use the low rate of Alligare 8% Copper for light infestations of easy-to-control algae species in soft water. The high rate of Alligare 8% Copper is indicated when any of the following conditions exist: heavy algae infestations, difficult-to-control species, or hard water.

⁵An invert emulsion carrier is indicated in slowly moving, or muddy water.

⁶Bottom placement is required where *Hydrilla* growth has reached the surface.

⁷Choose an application method which provides uniform coverage of the treated area and delivers the spray solution to the plant surface.

Surface Application: Apply using a hand held low pressure nozzle, or other method of application which provides uniform coverage of the treated area.

Subsurface Application: Use Delavan or Spraying System 80-degree nozzle tips fitted with 06 orifices on boom mounted trailing hoses 18 to 24 inches long. Such hoses will release the spray mixture 3 to 6 inches below the water surface. Booms can be mounted on the boat's bow or stern. Make applications in swaths no more than 20 feet apart.

Bottom Placement: Using weighted, trailing hoses and water as the carrier, inject the diluted Alligare 8% Copper plus diquat mixture 1 to 2 feet above the bottom.

FISH NOTE

Alligare 8% Copper is toxic to fish and other aquatic invertebrates. The risk of fish toxicity generally decreases as the hardness of the water increases.

IRRIGATION WITH TREATED WATER

Water treated with Alligare 8% Copper in accordance with label directions shall be used for irrigation immediately after treatment.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in a cool, dry place.

PESTICIDE DISPOSAL: 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 (five gallons or less): Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 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. Then offer for recycling if available, or puncture and dispose of container in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Nonrefillable Container (greater than five gallons): Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 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. Then offer for recycling if available or puncture and dispose of container in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

CONDITION OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

To the extent consistent with applicable law, upon purchase or use of this product, purchaser and user agree to the following terms:

Warranty: Alligare, LLC (the Company) warrants that this product conforms to the chemical description on the label in all material respects and is reasonably fit for the purpose referred to in the directions for use, subject to the exceptions noted below, which are beyond the Company's control. To the extent consistent with applicable law, the Company makes no other representation or warranty, express or implied, concerning the product, including no implied warranty of merchantability or fitness for a particular purpose. To the extent consistent with applicable law, no such warranty shall be implied by law, and no agent or representative is authorized to make any such warranty on the Company's behalf.

Terms of Sale: The Company's directions for use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, and the manner of use or application (including failure to adhere to label directions), all of which are beyond the Company's control. To the extent consistent with applicable law, all such risks are assumed by the user.

Limitation of Liability: To the extent consistent with applicable law, the exclusive remedy against the Company for any cause of action relating to the handling or use of this product is a claim for damages, and in no event shall damages or any other recovery of any kind exceed the price of the product which caused the alleged loss, damage, injury or other claim. To the extent consistent with applicable law, under no circumstances shall the Company be liable for any special, indirect, incidental or consequential damages of any kind, including loss of profits or income. Some states do not allow the exclusion or limitation of incidental or consequential damages.

The Company and the seller offer this product, and the purchaser and user accept this product, subject to the foregoing warranty, terms of sale and limitation of liability, which may be varied or modified only by an agreement in writing signed on behalf of the Company by an authorized representative.

EPA 20121014