



BRAND COPPER SULFATE CRYSTALS

SPECIFIC INSTRUCTIONS

TO CONTROL ALGAE IN IMPOUNDED WATERS, LAKES, PONDS AND RESERVOIRS: There are several methods by which to apply this product to impounded water. Probably the most satisfactory and simplest method is to dissolve this product in water and to spray this water over the body of water from a boat. A small pump mounted in the boat can easily be used for this purpose. Fine crystals may be broadcasted directly on the water surface from a properly equipped boat. A specially equipped air blower can be used to discharge fine crystals at a specific rate over the surface of the water. When using this method, the direction of the wind is an important factor. Do not use this method unless completely familiar with this type of application. Where the situation permits, this product may be applied under the water by dragging burlap bags containing this product. The crystals are placed in burlap bags and dragged through the water by means of a boat. Begin treatment along the shoreline and proceed outward until one-third to one-half of the total area has been treated. Care should be taken that the course of the boat is such as to cause even distribution of the chemical. In large lakes, it is customary for the boat to travel in parallel lines about 20 to 100 feet apart. Continue dragging the burlap bags over the treated area until the minimum dosage is achieved and all crystals have been dissolved. Large or medium size crystals that dissolve slowly should be used with this method.

AB BRAND COPPER SULFATE CRYSTALS REQUIRED FOR TREATMENT OF DIFFERENT GENERA OF ALGAE

The genera of algae listed below are commonly found in waters of the United States.

Use the lower recommended rate in soft waters (less than 50 ppm methyl orange alkalinity) and the higher concentration in hard waters (above 50 ppm alkalinity).

Always consult State Fish and Game Agency before applying this product to municipal waters.

ORGANISM	¼ - ½ ppm	½ - 1 ppm	1 - 1½ ppm	1½ - 2 ppm
Cyanophyceae (Blue-green)	Anabaena Anacystis Aphanizomenon Gloeotrichia Gomphosphaeria Polycystis Rivularia	Cylindrospermum Oscillatoria Plectonema	Nostoc Phormidium	Calothrix Symploca
Chlorophyceae (Green)	Closterium Hydrodictyon Spirogyra Ulothrix	Botryococcus Cladophora Coelastrum Draparnaldia Enteromorpha	Gloeocystis Microspora Tribonema Zygnema	Chlorella Crucigenia Desmidium Golenkinia Oocystis
Diatomaceae (Diatoms)	Asterionella Fragilaria Melosira Navicula	Gomphonema Nitzschia Stephanodiscus Synedra Tabellaria	Achnanthes Cymbella Neidium	Ankistrodesmus Chara Nitella Scenedesmus
Protozoa (Flagellates)	Dinobryon Synura Uroglena Volvox	Ceratium Cryptomonas Euglena Glenodinium Mallomonas	Chlamydomonas Hawmatococcus Peridinium	Eudorina Pandorina

Application Rates by Copper Concentration

¼ - ½ ppm = 0.67 - 1.3 lbs/acre ft.	½ - 1 ppm = 1.3 - 2.6 lbs/acre ft.	1 - 1½ ppm = 2.6-3.9 lbs/acre ft.	1½ - 2 ppm = 3.9 - 5.32 lbs/acre ft.
--	---------------------------------------	--------------------------------------	---

This product can be applied to impounded waters by injecting a solution of this product in water via a piping system.

Calculations for the amount of water impounded and for the amount of AB Brand Copper Sulfate Crystals to be used:

Calculate water volume as follows:

1. Obtain surface area by measuring of regular shaped ponds or mapping of irregular ponds or by reference to previously recorded engineering data or maps.
2. Calculate average depth by sounding in a regular pattern and taking the mean of these readings or by reference to previously obtained data.
3. Multiply surface area in feet by average depth in feet to obtain cubic feet of water volume.
4. Multiply surface area in acres by average depth in feet to obtain total acre-feet of water volume.

Calculate weight of water to be treated as follows:

1. Multiply volume in cubic feet by 62.44 to obtain total pounds of water, or
2. Multiply volume in acre feet by 2,720,000 to obtain pounds of water.

Calculations of active ingredient to be added: To calculate the amount of Copper Sulfate Pentahydrate needed to achieve the recommended concentration, multiply the weight of water by the recommended concentration of AB Brand Copper Sulfate Crystals. Since recommended concentrations are normally given in parts per million (ppm), it will first be necessary to convert the value in parts per million to a decimal equivalent.

EPA REG. NO. 56576-1-8959
EPA EST. NO. 42291-GA-1

ACTIVE INGREDIENT	BYWEIGHT
COPPER SULFATE PENTAHYDRATE.....	99.0%
OTHER INGREDIENTS.....	1.0%
TOTAL.....	100.0%
Copper as metallic not less than 25%	
CAS #7758-99-8	



Germantown, WI 53022 • 1-800-558-5106
www.appliedbiochemists.com

For example, 2 ppm is the same as 0.000002 when used in this calculation. Therefore, to calculate the amount of Copper Sulfate Pentahydrate to treat 1 acre-foot of water with 2 ppm AB Brand Copper Sulfate Crystals, the calculation would be as follows:

$$0.000002 \times 2,720,000 = 5.44 \text{ lbs. Copper Sulfate Pentahydrate}$$

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 may be in the area during application. For requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

GENERAL INSTRUCTIONS FOR USE

Water hardness, temperature of the water, the type and amount of vegetation to be controlled, and the amount of water flow are to be considered in using this product to control algae. Begin treatment soon after plant growth has started. If treatment is delayed until a large amount of algae is present, larger quantities of this product will be required. Algal growth is difficult to control with this product when water temperatures are low or when the water conditions are hard water. Larger quantities of this product will be required to kill and control algae in water that is flowing than in a body of stagnant water. If possible, curtail the flow of water before treatment and hold dormant for approximately three days after treatment or until the algae have begun to die. When preparing a solution of this product in water, the mixing container should be made of plastic or glass: or, a painted, enameled, or copper lined metal container. It is usually best to treat algae on a sunny day when the heavy mats of filamentous algae are most likely to be floating on the surface where it can be sprayed directly. **If there is some doubt about the concentration to apply, it is generally best to start with a lower concentration and to increase this concentration until the algae are killed. Treatment of algae can result in oxygen loss from decomposition of dead algae. This loss can cause fish suffocation. Therefore, to minimize this hazard, treat one-third to one-half of the water area in a single operation and wait 10 to 14 days in between treatments.** Begin treatments along the shore and proceed outward in bands to allow fish to move into untreated water. NOTE: If treated water is to be used as a source of potable water, the metallic copper residual must not exceed 1 ppm (4 ppm copper sulfate pentahydrate). **Calculation of water flow in ditches, streams, and irrigation systems:** The amount of water flow in cubic feet per second is found by means of a weir or other measuring device.

SEWER TREATMENT – ROOT DESTROYER*

ROOT CONTROL GENERAL INFORMATION: Plant roots can penetrate through small cracks and poorly sealed joints of sewer lines. If not controlled, these small roots will continue to grow larger in number causing breakage, reduced flow, and eventually, flow stoppage. This product has been known to be an effective means to control roots in residential and commercial sewers.

COMMERCIAL, INSTITUTIONAL, AND MUNICIPAL SEWERS:

ROOT CONTROL IN SEWERS: As a preventive measure, apply into each junction or terminal manhole 2 pounds of this product every 6 to 12 months.

At time of reduced flow (some water flow is essential), add this product. If flow has not completely stopped, but has a reduced flow due to root masses, add this product in the next manhole above the reduced flow area. For complete stoppage, penetrate the mass with a rod to enable some flow before treatment.

ROOT CONTROL IN STORM DRAINS: Apply when water flow is light. If no water flow, as in dry weather, use a hose to produce a flow. Apply 2 pounds of this product per drain per year. It may be necessary to repeat treatments 3 to 4 times, at 2 week intervals, if drains become nearly plugged.

SEWER PUMPS AND FORCE MAINS: At the storage well inlet, place a cloth bag containing 2 pounds of this product. Repeat as necessary.

RESIDENTIAL OR HOUSEHOLD SEWER SYSTEMS: When a reduced water flow is first noticed, and root growth is thought to be the cause, treat with this product. It is important not to wait until a stoppage occurs because some water flow is necessary to move his product to the area of root growth. Usually, within 3 to 4 weeks, after roots have accumulated sufficient copper sulfate pentahydrate, the roots will die and begin to decay and water flow should increase. As the roots regrow, follow-up treatments with this product will be required. Applications may be made each year in the spring after plant growth begins, during late summer or early fall, or any time a reduced water flow, thought to be caused by root growth, occurs.

Apply 2-6 pounds of this product two times a year to household sewers. Add this product to sewer line by pouring about ½ pound increments into the toilet bowl nearest the sewer line and flush, repeat this process until recommended dose has been added, or remove cleanout plug and pour entire recommended quantity directly into the sewer line. Replace the plug and flush the toilet several times.

*NOTE: Do not use as a sewer additive where prohibited by State law. State law prohibits the use of this product in sewage systems in the State of Connecticut. Not for sale or use in the California counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma for root control in sewers. Not for sale or use in septic systems in the State of Florida.

KEEP OUT OF REACH OF CHILDREN

DANGER - PELIGRO

FIRST AID: IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes. Then continue rinsing eye. Call a Poison Control Center or doctor for treatment advice. **IF ON SKIN OR CLOTHING:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a Poison Control Center or doctor for treatment advice. **IF SWALLOWED:** Call a Poison Control Center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to by a Poison Control Center or doctor. Do not give anything by mouth to an unconscious person. **IF INHALED:** Move person to fresh air. If person is not breathing call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. **EMERGENCY NUMBER:** 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. If a medical emergency arises contact Arch Chemicals Emergency Action Network in the US call 1-800-654-6911 or outside the US call 423-780-2970. For help with a spill, leak, fire or exposure involving this material call CHEMTREC 1-800-424-9300. NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

PRECAUTIONARY STATEMENTS / HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER

CORROSIVE: Causes eye damage and irritation to the skin and mucous membranes. Harmful or fatal if swallowed. Do not get in eyes, on skin or on clothing. Do not breathe dust or spray mist. May cause skin sensitization reactions to certain individuals. **PERSONAL PROTECTIVE EQUIPMENT:** Applicators and other handlers must wear long-sleeved shirt and long pants, chemical-resistant gloves made of any waterproof material, shoes plus socks, and protective eyewear. Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical resistance category selection chart. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. **USER SAFETY RECOMMENDATIONS:** Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. **ENVIRONMENTAL HAZARDS:** This product is toxic to fish. Direct application of AB Brand Copper Sulfate Crystals to water may cause a significant reduction in populations of aquatic invertebrates, plants and fish. Do not treat more than one-half of lake or pond at one time in order to avoid depletion of oxygen from decaying vegetation. Allow 1 to 2 weeks between treatments for oxygen levels to recover. Trout and other species of fish may be killed at application rates recommended on this label, especially in soft or acid waters. However, fish toxicity generally decreases when the hardness of water increases. Do not contaminate water by cleaning of equipment or disposal of wastes. Consult your local State Fish and Game Agency before applying this product to public waters. Permits may be required before treating such waters.

STORAGE AND DISPOSAL: Do not contaminate water, food or feed by storage or disposal. **STORAGE:** Store in original container and place in a locked storage area. **PESTICIDE DISPOSAL:** Call your local state waste agency (or 1-800-CLEANUP or equivalent organization) for disposal instructions. Unless otherwise instructed, place in the trash. Never pour unused product down the drain or on the ground. **CONTAINER DISPOSAL:** Do not reuse this container. Do not rinse unless required for recycling. Place in trash.

WARRANTY STATEMENT

To the extent consistent with applicable law neither the manufacturer nor the seller makes any warranty, expressed or implied concerning the use of this product other than indicated on the label. To the extent consistent with applicable law buyer assumes risk of use of this material when such use is contrary to label instructions. Read and follow the label directions.

ENVIRONMENTALLY HAZARDOUS SUBSTANCES
SOLID, N.O.S. (CUPRIC SULFATE) UN3077, RQ

©2009 Applied Biochemists 040109