OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION
WASHINGTON, D.C. 20460

November 6, 2023

Timothy Joseph
Old Bridge Chemicals, Inc.
c/o Landis International, Inc.
P.O. Box 5126
Valdosta, GA 31603-5126

Subject: Notification per PRN 98-10 – New brand name
Product Name: Old Bridge Copper Sulfate
EPA Registration Number: 46923-4
Application Date: 2/6/2023
Case Number: 477799

Dear Timothy Joseph:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10.

The label submitted with the application has been stamped "NOTIFICATION" and placed in our records.

The new brand name, **"Old Bridge Copper Sulfate"** has been added to the product record.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

If you have any questions, please contact Yasmin Bowers at 202-566-2507 or Bowers.Yasmin@epa.gov.

Regards,

Yasmin Bowers, Risk Manager
Registration Division (7505T)
Office of Pesticide Programs
U.S. Environmental Protection Agency

COMMERCIAL LABEL

Old Bridge Chemicals, Inc.

~~COPPER SULFATE FINE CRYSTALS~~OLD BRIDGE COPPER SULFATE

NOTIFICATION
46923-4
The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:
11062023

Certified to ANSI/NSF 60

Net Weight: 50, 2000 pounds (22.68, 907.2 Kg) EPA Reg. No. 46923-4
EPA Est. No. 46923-NJ-1

ACTIVE INGREDIENT
Copper Sulfate Pentahydrate*: CAS # 7758-99-8 ……..99.0%
OTHER INGREDIENTS……..1.0%
TOTAL…….100%

*Metallic Copper Equivalent: 25.2%

KEEP OUT OF REACH OF CHILDREN
DANGER/PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail).

FIRST AID	
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 swallowed	• Call 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 the 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. • Call 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 the poison control center or doctor for treatment advice.
HOT LINE SERVICE	
Have the product container or label with you when calling a poison control center or doctor, or for going for treatment. You may contact 800-275-3924 for emergency medical information.	
NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.	

See additional precautionary statements and directions for use [on side/back panel] [inside pamphlet, booklet, leaflet]

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive. Causes irreversible eye damage. May be fatal if swallowed. Do not get in eyes or on clothing. 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 to these waters.

PERSONAL PROTECTIVE EQUIPMENT

Mixers, Loaders, Applicators and other handlers must wear the following:

- Long sleeve shirt,
- long pants,
- shoes plus socks,
- protective eyewear such as glasses with side shields,
- chemical resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride (Some materials that are chemical resistant to this product are rubber and latex. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.),
- disposable particulate dust mask NIOSH approved N95.

Follow manufacturer's instructions for cleaning or 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 materials that have been drenched or heavily contaminated with product's concentrate. Do not reuse them.

USER SAFETY RECOMMENDATIONS

- Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Users should remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing. Wash the outside of gloves before removing.

ENVIRONMENTAL HAZARDS

AQUATIC USES: This pesticide is toxic to fish and aquatic invertebrates. Water 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 ½ 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 mg/L or lower), and soft waters (i.e. alkalinity less than 50 mg/L), increase the potential acute toxicity to non-target aquatic organisms.

Restrictions: For algae use except for treatment of rice to control algae: No more than ½ of the water body may be treated at one time. 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. For all algae use (including use of rice to control algae), the minimum retreatment interval is 14 days.

TERRESTRIAL USES: This pesticide is toxic to fish and aquatic invertebrates and may contaminate water through runoff. This product has a potential for runoff for several months or more after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product. Drift and runoff may be hazardous to aquatic organisms adjacent to treated areas. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water or rinsate.

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 any requirements specific for your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, (40 CFR Part
170). This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouse and handlers of agricultural pesticides. It contains requirements for training, decontamination notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protection equipment (PPE), and restricted-entry period. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard. Do not enter or allow worker entry into treated areas during restricted entry interval of
48 hours. PPE required for early entry to treated areas that is permitted by the Worker Protection Standard that involves contact with anything that has been treated, such as plants, soil or water is: Coveralls, shoes plus socks, chemical resistant gloves made waterproof material such as polyethylene or polyvinyl chloride and goggles or face shield.

NON AGRICULTURAL USE REQUIREMENTS

The requirement in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when the product is used to produce agricultural plants on farms, forest, nurseries or green-houses. Applicators and other handlers who handle this product for any use NOT covered by the Worker Protection Standard (CFR 40 Part 170) must wear long sleeve shirt, chemical resistant gloves made of water-proof material such as rubber or latex, shoes plus socks and protective eyewear. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Do not allow adults, children or pets to enter treated areas until sprays have completely dried or if applied dry until dust settles.

DRIFT MANAGEMENT

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

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 at stable atmospheric conditions.

Droplet Size: Apply only as a medium or coarse spray (ASAE Standard 572) or a mean diameter of 300 microns or greater for spinning atomizer nozzles.

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

Aerial Application: The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter. Release product at the lowest height consistent with efficacy and flight safety. Do not release 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.

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.

ALGAE CONTROL

When using Copper Sulfate to control algae, there are many factors to consider such as water hardness, temperature of the water, type and quantity of vegetation to be controlled and the amount of water flow. Algae can be controlled more easily and effectively if treatment with Copper Sulfate is made soon after algae growth has started. Under such circumstances, small amounts of Copper Sulfate can effectively control algae in water. However, if treatment is delayed until large amounts of algae are present larger quantities of Copper Sulfate will be required. Control of algae in water systems is not always permanent. Usually algae is more difficult to control with Copper Sulfate when water temperatures are low. The dose rates for Copper Sulfate are based on a water temperature of 60 º F or higher. Larger amounts of Copper Sulfate will be required in hard water. Normally, larger quantities of Copper Sulfate will be required to kill 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 about three days after treatment or until algae have begun to die. When preparing a Copper Sulfate solution in water, it is best that the mixing vessel be made of plastic or glass. Metal containers lined with plastic or painted or enameled are permissible. Galvanized containers are to be avoided. It is best to treat algae on calm, sunny days when heavy mats of filamentary algae are most likely to be floating on the surface where it can be sprayed directly. When in doubt about the concentration to be used, it is recommended to start with a lower concentration and gradually increase the concentration until the algae is killed.

CALCULATIONS FOR AMOUNT OF WATER AND COPPER SULFATE PENTAHYDRATE TO BE USED.

A. Calculate water volume as follows:

1. Obtain surface area by measuring regular shaped ponds or mapping irregular ponds or by use of a previously recorded data or maps.
2. Calculate average depth by measuring depth in a regular pattern and taking the mean of these readings or by use of previously recorded data.
3. Multiply surface area in square feet by average depth in feet to obtain cubic feet of water volume, or
4. Multiply surface area in acres by average depth in feet to obtain total acre feet of water volume. *For a body of water that contains fish, only 1/2 of the area may be treated at one time. After calculating the area of the body of water as instructed above, divide this number by 2. Use that number to calculate weight of water and amount of Copper Sulfate Pentahydrate required to treat half of the body of water.

B. 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 total pounds of water.

C. Calculate amount of Copper Sulfate Pentahydrate to add:

To calculate the weight of Copper Sulfate Pentahydrate needed to achieve the desired concentration, multiply the weight of water in pounds by the recommended concentration. Since the recommended concentrations are given in parts per million (ppm), first convert the value to a decimal equivalent. A value of 1 ppm is equivalent 0.000001 as a decimal value. Thus, the amount of Copper Sulfate Pentahydrate required to treat 1 acre-foot (2,720,000 pounds) of water with 1 ppm of Copper Sulfate Pentahydrate would be 0.000001 x 2,720,000= 2.72 lbs. Copper Sulfate Pentahydrate.

FOR SMALL PONDS: Follow the directions in "A" above. Calculate the weight of the water to be treated by multiplying the volume in cubic feet by 62.44 to obtain total pounds of water. For 1 ppm of Copper Sulfate Pentahydrate multiply the pounds by 0.000001. The result is pounds of Copper Sulfate Pentahydrate. The amount of Copper Sulfate Pentahydrate to treat a pond 100 ft. by 100 ft. by 2 ft. deep: 100 X 100 X 2 = 20,000 ft^3
20,000 cu ft. X 62.44 lbs = 1,248800 lbs of water X 0.000001 = 1.25 pounds of Copper Sulfate Pentahydrate.

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 1/3 to 1/2 of the water area in a single operation and wait14 days between treatments. Begin treatments along the shore and proceed outwards 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).

SPECIFIC INSTRUCTIONS

CONTROL ALGAE AND THE POTAMOGETON PONDWEEDS, LEAFY SAGO, IN IRRIGATION CONVEYANCE SYSTEMS: Use the continuous application method, selecting proper equipment to supply Copper Sulfate Crystal at 0.25 to 0.5 pounds per hour for each cubic foot per second of flow for twelve hours of each 24 hours. For the best control, begin Copper Sulfate additions when water is first turned into system to be treated and continue throughout the irrigation season. Copper Sulfate Crystal becomes less effective for mature plants. Copper Sulfate Crystal becomes less effective as the bicarbonate alkalinity increases and is substantially reduced above 150 ppm as $CaCO_3$. Mechanical or other means may then be required to remove excess growth.

TO CONTROL ALGAE SUCH AS FILAMENTOUS GREEN PIGMENTED FLAGELLATES AND DIATOMS IN IRRIGATION CONVEYANCE SYSTEMS: Begin continuous addition when water is first turned on using suitable equipment to uniformly deliver 0.1 to 0.2 pounds of Copper Sulfate Crystal per hour per cubic foot per second of flow for 12 of each 24 hours. (note: Copper Sulfate Crystal comes in several "free flowing" crystal sizes but should be selected to match requirements of your feeder.)

TO CONTROL ALGAE IN IMPOUNDED WATER, LAKES, PONDS AND RESERVOIRS:
There are several methods by which to apply Copper Sulfate to impounded water. Probably the simplest and the most satisfactory method is to dissolve the Copper Sulfate crystals in water and spray the solution over the body of water. Copper Sulfate may be broadcast directly on the water surface from boat. A small pump mounted in the boat can easily be used for this purpose. A specially equipped air blower can be used to discharge these size crystals at a specific rate over the surface of the water. When using this method, the wind direction is an important factor. Do not use this method unless completely familiar with this type of application. Copper Sulfate is also designed to be used as a dry application from airplanes, using a maximum of 10.64 pounds per acre-foot. Where the situation permits, Copper Sulfate may be applied under the water by dragging burlap bags filled with Copper Sulfate through the water by means of a boat. 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 the crystals have been dissolved. For all application methods described, begin treatment along the shoreline and proceed outward until 1/3 to 1/2 of the total area has been treated. No more than ½ of the water body may be treated at one time. The minimum treatment interval is 14 days. If the treated water is to be used as a source of potable water, the metallic copper concentration must not exceed 1 ppm (4 ppm Copper Sulfate).

COPPER SULFATE REQUIRED FOR TREATMENT OF DIFFERENT GENERA OF ALGAE:
The genera of algae listed below are commonly found in impounded water, lakes, ponds, and reservoirs in the United States. Use the lower recommended rate of Copper Sulfate in soft waters (less than 50 ppm methyl orange alkalinity) and higher concentration in hard water (above 50 ppm alkalinity).
Always consult State Fish and Game Agency before applying this product to municipal waters.

PRODUCT CONCENTRATION:	¼ to ½ ppm	½ to 1 ppm	1 to 1½ ppm	1½ to 2 ppm
POUNDS PRODUCT/ ACRE FOOT:	**.67 to 1.3**	**1.3 to 2.6**	**2.6 to 3.9**	**3.9 to 5.3**
ORGANISM				
Cyanophyceae (Blue Green)	Anabaena Anacystis Aphanizomenon Gloeotrichia Gomphosphaeria Polycystis Rivularia	Cylindrospermum Oscillatoris Plestonema	Nostoc Phormidum	Calothrix Symploca
Chlorophyceae (Green)	Closterium Hydrodictyon Spirogyra Ulothrix	Botryococcus Cladophora Coelastrum Drapamaldia Enteromorphia Gloeocystis Microspora Tribonema Zygnema	Chlorella Crucigenia Desmidium Golenkinia Oocystis Palmelia Pithiphora Staurastrum Tetraedron	Ankistrodesmus Chara Nitella Scenedemus
Diatomacese (Diatoms)	Asterionella Fragilaria Melorisa Navicula	Gomphonema Nitzschia Stephanodiscus Synedra Tabellaria	Achnanthes Cymbella Neidum	
Protozoa (Flagellates)	Dinobryon Synura Uroglena Volvox	Ceratium Cryptomonas Euglena Glenodinium Mallomonase	Chlamydomonas Haematococcus Peridinium	Eudorina Pandorina

CONTROL OF ALGAE AND BACTERIAL ODORS IN SWIMMING POOLS

To treat and prevent algae and odors, apply 1 tablespoon of ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate for every thousand gallons of pool water. This will result in a concentration of 1.0 ppm of dissolved copper. Prior to application, the pH of the pool should be 7.2-7.6. Dissolve the ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate in water in a plastic container and pour the solution into the pool around the edge of the pool. Never add ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate while swimming. As soon as the solution disperses in the pool water, you may reenter the pool.

Using a copper test kit (this may be purchased at any pool supply store) check copper levels every 2 weeks. As needed, apply a maintenance dosage of ½ tablespoon per thousand gallons of pool water to maintain a 0.7 to 1.0 ppm concentration. Do not exceed a 1.0 ppm copper concentration. Prior to application, the pH of the

pool should be 7.2-7.6. Dissolve the required amount of ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate in a plastic container and pour the solution into the pool around the edge of the pool.

Most pool shock products may be used with this product. During heavy usage, shock pool once a week and use a filter clarifier. ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate is a very simple and easy way to maintain your pool water looking crystal clear year round with very little maintenance. When used as directed ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate may be used for all pools (consult your pool professional on plaster or finished concrete pools before adding).

[Optional Claims:] This Pool Maintenance formula: Is simple to use; Has no chlorine smells; May be used with any type of filter system; Controls algae and bacterial odors; Has very little effect on pH; Unlike other products ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate will not evaporate out of your water; Compatible with most pool chemicals.

FRESHWATER SNAIL CONTROL

To kill parasites causing "swimmers itch" it is necessary to kill the various species of host snails with a maximum 1.5 ppm ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate (0.375 ppm metallic copper). In a body of water containing fish, only half of the area may be treated at once. Use the section CALCULATIONS FOR AMOUNT OF WATER AND COPPER SULFATE PENTAHYDRATE TO BE USED to calculate the amount of Copper Sulfate Pentahydrate crystals you will need to apply to the area to be treated. Apply Copper Sulfate crystals to the surface of the water or dissolve in water and make a surface spray. Keep swimmers and livestock out of the pond for 5 days following treatment; doubling this period in very soft waters. Do not make more than two applications per year. In the case where only half of the pond is being treated, it counts as half an application. In the state of New York, copper sulfate is considered a restricted use pesticide for snail control.

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 is an effective means to control roots in residential and commercial sewers.

COMMERCIAL, INSTITUTIONAL AND MUNICIPAL SEWERS ROOT CONTROL IN SEWERS.

As a preventative measure, apply directly into each junction or terminal manhole by pouring a maximum of two pounds of this product every 6 to 12 months. At time of reduced flow (some water 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 RAINS:

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 by pouring directly into drain. No more than 2 pounds of product may be applied per drain per year.

SEWER PUMPS AND FORCE MAINS:

At the storage well inlet, place a cloth bag containing 2 lbs of this product. Repeat every six

months if 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 this 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 re-grow, follow-up treatments with this product may be required every 6 months. Applications may be made each year in the spring after plant growth begins, during late summer or early fall, or anytime a reduced water flow, thought to be caused by root growth, occurs. Apply 1 pound of this product every six months to household sewers. Add this product to sewer lines 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 toilet several times. Do not apply Copper Sulfate through sink or tub as it will corrode metal drains. If system is equipped with septic tank, Copper Sulfate will precipitate in the septic tank and little will pass into the absorption drain field. To treat drain field pipes, add 2 pounds of Copper Sulfate once a year to the distribution box located between the septic tank and the drain field. If the distribution box does not have an opening, it would be advisable to install a clean out plug opening into the outlet pipe from the septic tank leading to the drain field for effective root control in the drain field pipes.

***NOTE:** Do not use a sewer additive where prohibited by State Law. State Law prohibits the use of this product in sewer systems in the State of Connecticut. Not for sale or use in 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.

CROP USE DIRECTIONS

TO CONTROL ALGAE IN RICE FIELDS: (Domestic and Wild): Application should be made when algae has formed on the soil surface in the flooded field. Applications are most effective when made prior to algae leaving the soil surface and rising to the surface of the water. For a 3-inch flood depth, apply Copper Sulfate at a rate of 2.72 lbs. per acre at the first sign of algae. Apply Copper Sulfate crystals to the surface of the water or dissolve in water and make a surface spray. For a 6-inch flooded depth, use 5.44 lbs. per acre. Adjust the rate according to the average water depth, not to exceed the maximum application rate of 4 ppm of Copper Sulfate (1 ppm metallic copper), which is equivalent to 10.88 lbs. of Copper Sulfate per acre-foot of water. The minimum retreatment interval is 14 days.

TO CONTROL TADPOLE SHRIMP IN RICE FIELDS: Application should be made to the flooded rice fields anytime the pest appears from planting time until the seedlings are well rooted and have emerged through the water. For a 3-inch flood depth, apply 6.75 pounds per acre. For a flood depth of 6 inches, use 13.6 lbs. per acre. Apply Copper Sulfate crystals to the surface of the water or dissolve in water and make a surface spray. Adjust the rate according to the average water depth, not to exceed the maximum application rate of 10 ppm of Copper Sulfate (2.5 ppm metallic copper), which is equivalent to 27.2 pounds of Copper Sulfate per acre of water.

Non-Bordeaux Applications

Crop: Pest	Season	Copper Mixture	Maximum Rate per Application: pounds product per acre	Maximum Rate per Year: pounds product per acre	Minimum Retreatment Interval	Use Notes
Apple: Fireblight	dormant up to silver tip stage	5 lbs of product in 100 gals of water	Dormant use: 32 lbs (8 lbs metallic copper) Silver tip use: 24 lbs (6 lbs metallic copper)	64 lbs (16 lbs metallic copper)	N/A-only one application per year	Spray uniformly to the point of runoff. Do not apply after silver tip stage. After silver tip, severe burn will occur on any exposed green tissue. DO NOT mix lime to make a Bordeaux spray for this treatment.
Grape: Powdery Mildew	Dormant	Use 4 lbs of product per 100 gals of water	12.0 lbs (3.0 lbs metallic copper)	80.0 lbs (20.0 lbs metallic copper)	3 days	Apply in spring before bud-swell and before any green tissue is present. Apply in a high volume spray of 300 gals water per acre. Direct spray to thoroughly wet the dormant vine, especially the bark of the trunk, head or cordons.
Potatoes: Late Blight (suppression)	Vine-kill	Ground equipment: 10 lbs per acre in 10 to 100 gals of water Aerial equipment: 10 lbs per acre in 5 to 10 gals of water with Diquat	10 lbs (2.5 lbs metallic copper)	100 lbs. (25 lbs metallic copper)	5 days	Apply to enhance vine-kill and suppress late blight-apply at vine-kill stage. Additional applications can be made with Diquat if needed to within 7 days of harvest. ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate may be applied alone until harvest to suppress late blight. NOTE: This product can be mixed with Diquat for use on potatoes in accordance with the most restrictive of label limitations and precautions. No label dosage rates should be exceeded.

BORDEAUX SPRAY MIXTURE

Understanding Bordeaux Formulations: If the Bordeaux mixture instructions read 10-10-100, the first figure indicates the number of lbs of ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate. The second figure is the lbs of hydrated spray lime and the third figure is the gallons of water to be used. Use as a full coverage spray. In the instructions below, weight of copper sulfate in lbs is followed by weight expressed as metallic copper, e.g., 1 lb ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate equals 0.25 lb metallic copper.

Preparation of Bordeaux Spray Mixture: Fill a tank 1/4 full with water. Then, with agitator running, mix in product through a copper, bronze, stainless steel or plastic screen. Add water so the tank is 3/4 full. Mix in the hydrated spray lime through the screen and finish filling the tank with water.

Crop: Pest	**Season**	**Bordeaux Mixture**	**Maximum Rate per Application: pounds product per acre**	**Maximum Rate per Year: pounds product per acre**	**Minimum Retreatment Interval**	**Use Notes**
Almond, Apricot, Peach, Nectarine: Shot Hole Fungus	Dormant late fall or early spring	10-10-100	32 lbs (8 lbs metallic copper)	72 lbs (18 lbs metallic copper)	7 days	Apply as a dormant spray in late fall or early spring.
Almond, Apricot, Cherry, Peach, Nectarine, Plum, Prune: Brown Rot Blossom Blight	Late Dormant	10-10-100	32 lbs (8 lbs metallic copper	72 lbs (18 lbs metallic copper)	7 days	Apply as a late dormant spray when buds begin to swell.
Blueberries: Bacterial Canker (Not for use in California)	Fall	8-8-100	8.4 lbs (2.1 lbs metallic copper)	33.6 lbs (8.4 lbs metallic copper)	7 days	Prepare and apply in the fall before heavy rains begin and again 4 weeks later.
Bulbs (Easter Lily): Botrytis Blight		10-10-100	10 lbs (2.5 lbs metallic copper)	300 lbs (75 lbs metallic copper)	7 days	Apply as a foliar spray with thorough coverage beginning at the first sign of disease and repeat as needed to control disease at 7 to 10 day intervals. Use the shorter intervals during periods of frequent rains or when severe disease conditions persist. Avoid spray just before flower cutting season if residues are a problem. Do not apply any additional copper pesticide to this land for 36 months.

Crop: Pest	Season	Bordeaux Mixture	Maximum Rate per Application: pounds product per acre	Maximum Rate per Year: pounds product per acre	Minimum Retreatment Interval	Use Notes
Bulbs (all other ornamentals, Tulip, Gladiolus): Botrytis Blight		8-8-80 Bordeaux	8 lbs (2 lbs metallic copper)	80 lbs (20 lbs metallic copper)	7 days	Apply as a foliar spray with thorough coverage beginning at the first sign of disease and repeat as needed to control disease at 7 to 10 day intervals. Use the shorter intervals during periods of frequent rains or when severe disease conditions persist. Avoid spray just before flower cutting season if residues are a problem.
Caneberries: For Leaf and Cane Spot and Pseudomonas Blight	Fall	8-8-100	8 lbs (2.0 lbs metallic copper)	40 lbs (10 lbs metallic copper) per acre per year.	7 days	Apply in the fall before heavy rains begin and again 4 weeks later.
Cherry (Sweet): Dead Bud, Bacterial Canker (Pseudomonas Syringae)	Fall-Late winter	12-12-100	32 lbs (8 lbs metallic copper)	72 lbs (18 lbs metallic copper)	7 days	Apply at leaf fall and again in late winter before buds begin to swell. In wet cool Northwest U.S. winters, a third spray may be needed between above sprays.
Cherry (Sour): Leaf Spot	Spring	10-10-100	6 lbs (1.5 lbs metallic copper) (60 gallons Bordeaux Mixture)	72 lbs (18 lbs metallic copper)	5 days	Apply as a full coverage spray after petal fall or as recommended by the State Extension Service.
Citrus[1]: Bacterial Blast	Fall	10-10-100	12.6 lbs (3.15 lbs metallic copper)	50.4 lbs (12.6 lbs metallic copper)	7 days	Apply a spray in late October to early November or before fall rains begin. Make a complete coverage spray using 10 to 25 gals per mature tree.

Crop: Pest	Season	Bordeaux Mixture	Maximum Rate per Application: pounds product per acre	Maximum Rate per Year: pounds product per acre	Minimum Retreatment Interval	Use Notes
Citrus[1]- Lemon, Orange, Grapefruit: Phytophthora Brown Rot	Fall-Winter	3-4.5-100	12.6 lbs Copper Sulfate Crystals (3.15 lbs metallic copper)	50.4 lbs (12.6 lbs metallic copper)	7 days	Apply only where there is no history of copper injury or use a 3-2-6-100 (Zinc Sulfate-Copper Sulfate Crystals-Hydrated Lime-Gallons of water) Bordeaux mixture. Spray 6 gals on skirt of tree 3 to 4 ft high and 2 to 4 gals on trunk and ground under tree. If *P. hibernalis* is present, use 10 to 25 gals to completely cover each tree. Apply in November or December just before or after first rain. In severe brown rot season, apply second application in January or February.
Citrus[1]- Lemon, Orange, Grapefruit: Septoria Fruit, Leaf Spot; Central California – Brown Rot, Zinc, Copper Deficiencies	Fall	3-2-6-100 (Zinc Sulfate-Copper Sulfate Crystals-Hydrated Lime-Gallons of water)	12.6 lbs (3.15 lbs metallic copper)	50.4 lbs (12.6 lbs metallic copper)	7 days	Apply 10 to 25 gals to completely cover each tree. Apply in October, November or December before or just after first rain.
Grape: Downy Mildew		2-6-100	12.0 lbs (3.0 lbs metallic copper)	80.0 lbs (20.0 lbs metallic copper)	3 days	Apply spray beginning when downy mildew is detected. Repeat as needed to achieve and maintain control. This mixture and its use will exhibit some phytotoxicity on most varieties.
Olive: Olive Leaf Spot (Peacock spot)	Fall-Winter	10-10-100	24 lbs (6.0 lbs metallic copper)	72 lbs (18 lbs metallic copper)	30 days	Apply in autumn before heavy winter rains to prevent peacock spot. In wet winters, a repeat spray may be needed in mid-winter. In areas with less than 10 inches of annual rainfall, a 5-5-100 Bordeaux may be used.
Olive: Olive Knot	Winter-Spring	10-10-100	24 lbs (6.0 lbs metallic copper)	72 lbs (18 lbs metallic copper)	30 days	Apply before heavy winter rains and again in the spring. Injury may occur in areas of less than 10 inches of rainfall.

Crop: Pest	Season	Bordeaux Mixture	Maximum Rate per Application: pounds product per acre	Maximum Rate per Year: pounds product per acre	Minimum Retreatment Interval	Use Notes
Peach: Leaf Curl	Late Fall – Early Spring	10-10-100	32 lbs (8 lbs metallic copper)	72 lbs (18 lbs metallic copper)	7 days	apply at leaf fall or as a dormant spray in late fall or early spring before buds begin to swell.
Walnuts: Walnut Blight	Spring	15-10-100	16 lbs (4.0 lbs metallic copper) per acre per application.	DO NOT exceed 128 lbs (32 lbs metallic copper) per acre per year.	7 days	Apply in early Spring pre-bloom before catkin blooms are showing (10-20% pistillate) before or after rain. Use only if Bordeaux mixture has been shown to be non-phytotoxic in your area. If desired, add one-half gallon of summer oil emulsion per 100 gals of water. NOTE: Addition of summer oil emulsion to pre-bloom and early bloom sprays may result in plant injury.

1. Adding foliar nutritionals to spray mixtures containing ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate or other products and applying to citrus during the post-bloom period when young fruit is present may result in spray burn.

CHEMIGATION INSTRUCTIONS

Apply this product only through one or more of the following types of systems: sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move irrigation system(s). Do not apply this product through any other type of irrigation system. 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, you should contact State Extension Service specialists, equipment manufacturers 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. A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Posting of areas to be chemigated is required when 1) any part of a treated area is within 300 feet of sensitive areas such as residential area, labor camps, businesses, day care centers, hospitals, in-patient clinics, nursing homes or any public areas such as schools, parks, playgrounds, or other public facilities not including public roads, or 2) when the chemigated area is open to the public such as golf courses or retail greenhouses. Posting must conform to the following requirements. Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive areas. When there are no usual points of entry, signs must be posted in the corners of the treated areas and in any other location affording maximum visibility to sensitive areas. The printed side of the sign should face away from the treated area towards the sensitive area. The signs shall be printed in English. Signs must be posted prior to application and must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place indefinitely as long as they are composed of materials to prevent deterioration and maintain legibility for the

duration of the posting period. At the top of the sign shall be the words ”KEEP OUT”, followed by an octagonal stop sign symbol at least 8 inches in diameter containing the word ”STOP”. Below the symbol shall be the words “PESTICIDES IN IRRIGATION WATER”. All words shall consist of letters at least 2 ½ inches tall, and all letters and the symbol shall be a color that sharply contrasts with their immediate background. This sign is in addition to any sign posted to comply with the Worker Protection Standard.

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

SPRINKLER CHEMIGATION:
The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. 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 backflow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. This 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.

TREATMENT INSTRUCTIONS:
Do not apply when wind speed favors drift beyond the area intended for treatment. When mixing, fill nurse tank half full with water. Add Copper Sulfate Crystals slowly to tank while hydraulic or mechanical agitation is operating and continue filling with water. Stickers, spreaders, insecticides, nutrients, etc. should be added last. If compatibility is in question, use the compatibility jar test before mixing a whole tank. Because of the wide variety of possible combinations which can be encountered, observe all cautions and limitations on the label of all products used in mixtures. Copper Sulfate Crystals should be added through a traveling irrigation system continuously or at the last 30 minutes of solid set or hand moved irrigation systems. Agitation is recommended.

STORAGE AND DISPOSAL

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

Pesticide Storage: Store in a cool and dry place. If paper bag, super sack, or jug is damaged place in a plastic bag. Shovel any spills into a plastic bag and seal with tape. Keep pesticide in original container. Do not put concentrate or dilutions of concentrate in food or drink containers.

Pesticide Disposal: Pesticide wastes may be hazardous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional office for guidance.

Container Handling: Non-refillable container: Do not reuse or refill this container.

Super Sack and Paper Bags: Completely empty bag into application equipment, then offer for recycling if available or dispose of empty bag in a sanitary landfill or by incineration or if allowed by state and local authorities, by burning. If burned, stay out of smoke. Plastic Jugs: Triple rinse container promptly after emptying. Triple rinse as follows: Empty remaining contents into application equipment or mix tank. Fill the container ¼ full with water and recap. Shake for ten seconds. Pour rinsate into application equipment or a mix tank or store for future use or disposal. Drain for 10 seconds after flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, if available, or puncture and dispose of in a sanitary landfill, or, if allowed by State and Local authorities, by burning. If burning, stay out of smoke.

CONDITION OF SALE
LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES

Read and follow all package directions carefully. Purchaser and user assume all risks associated with improper use, or application or other factors beyond Old Bridge's control. Old Bridge warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use subject to the risks referred above. **OLD BRIDGE MAKES NO AND THE LAW SHALL NOT FIND ANY EXPRESSED OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.** To the extent consistent with applicable law, purchaser's use and sole remedy against Old Bridge for any cause of action related to the handling or use of this product shall be for damages, for the amount of which shall not exceed the price paid for the product that causes the alleged loss, damages, injury, or other claim to the extent consistent with applicable law. In no event shall Old Bridge be liable for special, indirect, incidental or consequential damages or expenses. By purchasing or using this product, purchaser or user accept the foregoing conditions of sale and limitation of warranty, liability, and remedies.

ENVIROMENTALLY HAZARDOUS SUBSTANCE
SOLID, N.O.S. (CUPRIC SULFATE),
9,UN3077, PGIII, RQ CASE NO. 7758-99-8

For Technical Information and MSDS Call Old Bridge Chemicals
at (732) 727-2225
or e-mail: Sales@OldBridgeChem.com
OLD BRIDGE CHEMICALS, INC
554 Waterworks Road
Old Bridge, New Jersey 08857

NON-COMMERCIAL LABEL FOR HOUSEHOLD USE

Old Bridge Chemicals, Inc.

~~COPPER SULFATE FINE CRYSTALS~~OLD BRIDGE COPPER SULFATE

Net Weight:, 5 pounds (2.267 Kg), 15 pounds (6.803 Kg)
EPA Reg. No. 46923-4 EPA Est. No. 46923-NJ-1
ACTIVE INGREDIENT
Copper Sulfate Pentahydrate*: CAS # 7758-99-8 ……..99.0%
OTHER INGREDIENTS……..1.0%
TOTAL…….100%

*Metallic Copper Equivalent: 25.2%

Certified to ANSI/NSF 60

KEEP OUT OF REACH OF CHILDREN

DANGER/PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail).

FIRST AID	
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 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 the 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. • Call 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 poison control center or doctor for treatment advice.
HOT LINE SERVICE	
Have the product container or label with you when calling a poison control center or doctor, or for going for treatment. You may contact 800-275-3924 for emergency medical information.	
NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.	

See additional precautionary statements and directions for use [on side/back panel] [inside pamphlet, booklet, leaflet]

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive. Causes irreversible eye damage. May be fatal if swallowed. Do not get in eyes or on clothing. 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 to these waters.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear the following:

- Long sleeve shirt,
- long pants,
- shoes plus socks,
- protective eyewear such as goggles, face shield or safety glasses,
- chemical resistant gloves made of any waterproof material. Some materials that are chemical resistant to this product are polyvinyl chloride, nitrile rubber or butyl rubber. If you want more options, follow the instructions for category A on an EPA chemical resistance category selection chart.

Follow manufacturer's instructions for cleaning or 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 materials that have been drenched or heavily contaminated with product's concentrate. Do not reuse them.

USER SAFETY RECOMMENDATIONS

- Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Users should 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

AQUATIC USES: This product is toxic to fish and aquatic invertebrates. Water 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. The oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, do not treat more than ½ 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 mg/L or lower), and soft waters (i.e. Alkalinity less than 50 mg/L), increase the potential acute toxicity to non-target aquatic organisms.

TERRESTRIAL USES: This pesticide is toxic to fish and aquatic invertebrates and may contaminate water through runoff. This product has a potential for runoff for several months or more after application. Poorly drained

soils and soils with shallow water tables are more prone to produce runoff that contains this product. Drift and runoff may be hazardous to aquatic organisms adjacent to treated areas. Do not apply directly to water, or to area where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing or equipment wash water or rinsate.

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 adults, children, or pets, either directly or through drift. Do not allow adults, children, or pets to enter the treated area until dusts have settled.

GENERAL INSTRUCTIONS FOR USE IN ALGAE CONTROL

When using Copper Sulfate to control algae, there are many factors to consider such as water hardness, temperature of the water, type and quantity of vegetation to be controlled and the amount of water flow. Algae can be controlled more easily and effectively if treatment with Copper Sulfate is made soon after algae growth has started. Under such circumstances, small amounts of Copper Sulfate can effectively control algae in water. However, if treatment is delayed until large amounts of algae are present larger quantities of Copper Sulfate will be required. Control of algae in water systems is not always permanent. Usually algae is more difficult to control with Copper Sulfate when water temperatures are low. The dose rates for Copper Sulfate are based on a water temperature of 60 °F or higher. Larger amounts of Copper Sulfate will be required in hard water. Normally, larger quantities of Copper Sulfate will be required to kill 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 about three days after treatment or until algae have begun to die. When preparing a Copper Sulfate solution in water, it is best that the mixing vessel be made of plastic or glass. Metal containers lined with plastic or painted or enameled are permissible. Galvanized containers are to be avoided. It is best to treat algae on calm, sunny days when heavy mats of filamentary algae are most likely to be floating on the surface where it can be sprayed directly. When in doubt about the concentration to be used, it is recommended to start with a lower concentration and gradually increase the concentration until the algae is killed.

CALCULATIONS FOR AMOUNT OF WATER AND COPPER SULFATE PENTAHYDRATE TO BE USED

A. Calculate water volume as follows:
   1. Obtain surface area by measuring regular shaped ponds or mapping irregular ponds or by use of a previously recorded data or maps.
   2. Calculate average depth by measuring depth in a regular pattern and taking the mean of these readings or by use of previously recorded data.
   3. Multiply surface area in square feet by average depth in feet to obtain cubic feet of water volume, or
   4. Multiply surface area in acres by average depth in feet to obtain total acre feet of water volume.

      *For a body of water that contains fish, only 1/2 of the area may be treated at one time. After calculating the area of the body of water as instructed above, divide this number by 2. Use that number to calculate weight of water and amount of Copper Sulfate Pentahydrate required to treat half of the body of water.

B. 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 total pounds of water.

C. Calculate amount of Copper Sulfate Pentahydrate to add:

To calculate the weight of Copper Sulfate Pentahydrate needed to achieve the desired concentration, multiply the weight of water in pounds by the recommended concentration, Since the recommended concentrations are given in parts per million (ppm), first convert the value to a decimal equivalent. A value of 1 ppm is equivalent 0.000001 as a decimal value. Thus the amount of Copper Sulfate Pentahydrate required to treat 1 acre-foot (2,720,000 pounds) of water with 1 ppm of Copper Sulfate Pentahydrate would be 0.000001 x 2,720,000= 2.72 lbs. Copper Sulfate Pentahydrate.

FOR SMALL PONDS: Follow the directions in "A" above. Calculate the weight of the water to be treated by multiplying the volume in cubic feet by 62.44 to obtain total pounds of water. For 1 ppm of Copper Sulfate Pentahydrate multiply the pounds by 0.000001. The result is pounds of Copper Sulfate Pentahydrate. The amount of Copper Sulfate Pentahydrate to treat a pond 100 ft. by 100 ft. by 2 ft. deep:

100 X 100 X 2 = 20,000 ft^3

20,000 cu ft. X 62.44 lbs = 1,248800 lbs of water X .000001 = 1.25 pounds of Copper Sulfate Pentahydrate.

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 $^1/_3$ to ½ of the water area in a single operation and wait 14 days between treatments. Begin treatments along the shore and proceed outwards 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).

SPECIFIC INSTRUCTIONS

TO CONTROL ALGAE IN IMPOUNDED WATER, LAKES AND PONDS: There are several methods by which to apply Copper Sulfate to impounded water. Probably the simplest and the most satisfactory method is to dissolve the Copper Sulfate crystals in water and spray the solution over the body of water. A small pump mounted in the boat can easily be used for this purpose. Copper Sulfate may be broadcast directly on the water surface from a boat. Where the situation permits, Copper Sulfate may be applied under the water by dragging burlap bags filled with Copper Sulfate through the water by means of a boat. 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 the crystals have been dissolved. For all application methods described, begin treatment along the shoreline and proceed outward until 1/3 to 1/2 of the total area has been treated. No more than half of the water body may be treated at a time. The minimum treatment interval is 14 days. If the treated water is to be used as a source of potable water, the metallic copper concentration must not exceed one ppm (4 ppm Copper Sulfate).

COPPER SULFATE REQUIRED FOR TREATMENT OF DIFFERENT GENERA OF ALGAE:
The genera of algae listed below are commonly found in impounded water, lakes, ponds, and reservoirs in the United States. Use the lower recommended rate of Copper Sulfate in soft waters (less than 50 ppm methyl orange alkalinity) and higher concentration in hard water (above 50 ppm alkalinity).
Always consult State Fish and Game Agency before applying this product to municipal waters.

PRODUCT CONCENTRATION:	**¼ to ½ ppm**	**½ to 1 ppm**	**1 to 1½ ppm**	**1½ to 2 ppm**
POUNDS PRODUCT/ ACRE FOOT:	**.67 to 1.3**	**1.3 to 2.6**	**2.6 to 3.9**	**3.9 to 5.3**
ORGANISM				
Cyanophyceae (Blue Green)	Anabaena Anacystis Aphanizomenon Gloeotrichia Gomphosphaeria Polycystis Rivularia	Cylindrospermum Oscillatoris Plestonema	Nostoc Phormidum	Calothrix Symploca
Chlorophyceae (Green)	Closterium Hydrodictyon Spirogyra Ulothrix	Botryococcus Cladophora Coelastrum Drapamaldia Enteromorphia Gloeocystis Microspora Tribonema Zygnema	Chlorella Crucigenia Desmidium Golenkinia Oocystis Palmelia Pithiphora Staurastrum Tetraedron	Ankistrodesmus Chara Nitella Scenedemus
Diatomacese (Diatoms)	Asterionella Fragilaria Melorisa Navicula	Gomphonema Nitzschia Stephanodiscus Synedra Tabellaria	Achnanthes Cymbella Neidum	
Protozoa (Flageliates)	Dinobryon Synura Uroglena Volvox	Ceratium Cryptomonas Euglena Glenodinium Mallomonase	Chlamydomonas Haematococcus Peridinium	Eudorina Pandorina

CONTROL OF ALGAE AND BACTERIAL ODORS IN SWIMMING POOLS

To treat and prevent algae and odors, apply 1 tablespoon of ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate for every thousand gallons of pool water. This will result in a concentration of 1.0 ppm of dissolved copper. Prior to application, the pH of the pool should be 7.2-7.6. Dissolve the ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate in water in a plastic container and pour the solution into the pool around the edge of the pool. Never add ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate while swimming. As soon as the solution disperses in the pool water, you may reenter the pool.

Using a copper test kit (this may be purchased at any pool supply store) check copper levels every 2 weeks. As needed, apply a maintenance dosage of ½ tablespoon per thousand gallons of pool water to maintain a 0.7 to 1.0 ppm concentration. Do not exceed a 1.0 ppm copper concentration. Prior to application, the pH of the pool should be 7.2-7.6. Dissolve the required amount of ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate in a plastic container and pour the solution into the pool around the edge of the pool.

Most pool shock products may be used with this product. During heavy usage, shock pool once a week and use a filter clarifier. ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate is a very simple and easy way to maintain your pool water looking crystal clear year round with very little maintenance. When used as directed ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate may be used for all pools (consult your pool professional on plaster or finished concrete pools before adding).

[Optional Claims:] This Pool Maintenance formula: Is simple to use; Has no chlorine smells; May be used with any type of filter system; Controls algae and bacterial odors; Has very little effect on pH; Unlike other products ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate will not evaporate out of your water; Compatible with most pool chemicals.

FRESHWATER SNAIL CONTROL

To kill parasites causing "swimmers itch" it is necessary to kill the various species of host snails with a maximum 1.5 ppm ~~Copper Sulfate Fine Crystals~~Old Bridge Copper Sulfate (0.375 ppm metallic copper). In a body of water containing fish, only half of the area may be treated at once. Use the section CALCULATIONS FOR AMOUNT OF WATER AND COPPER SULFATE PENTAHYDRATE TO BE USED to calculate the amount of Copper Sulfate Pentahydrate crystals you will need to apply to the area to be treated. Apply Copper Sulfate crystals to the surface of the water or dissolve in water and make a surface spray. Keep swimmers and livestock out of the pond for 5 days following treatment; doubling this period in very soft waters. Do not make more than two applications per year. In the case where only half of the pond is being treated, it counts as half an application. In the state of New York, copper sulfate is considered a restricted use pesticide for snail control.

SEWER TREATMENT-ROOT DESTROYER

NOTE: Do not use a sewer additive where prohibited by State Law. State Law prohibits the use of this product in sewer systems in the State of Connecticut. Not for sale or use in 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

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 is an effective means to control roots in residential and commercial sewers.

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 this 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 may be required every 6 months. Applications may be made each year in the spring after plant growth begins, during late summer or early fall, or anytime a reduced water flow, thought to be caused by root growth, occurs. Apply 1 pound of this product every six months to household sewers. Add this product to sewer lines 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 toilet several times. Do not apply Copper Sulfate through sink or tub as it will corrode metal drains. If system is equipped with septic tank, Copper Sulfate will precipitate in the septic tank and little will pass into the absorption drain field. To treat drain field pipes, add 2 pounds of Copper Sulfate once a year to the distribution box located between the septic tank and the drain field. If the distribution box does not have an opening, it would be advisable to install a clean out plug opening into the outlet pipe from the septic tank leading to the drain field for effective root control in the drain field pipes.

STORAGE AND DISPOSAL

Do not contaminate food or feed by storage or disposal.
PESTICIDE STORAGE: Store in original container and place in a locked storage area.
PESTICIDE DISPOSAL: Call your local solid waste agency for disposal instructions. Never pour unused product down the drain or on the ground.
CONTAINER HANDLING: Non-refillable container. Do not reuse or refill this container.
If empty: Offer for recycling if available or discard in a sanitary landfill. If partly filled: Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

CONDITION OF SALE
LIMITED WARRANTY AND LIMITATIONS
OF LIABILITY AND REMEDIES

Read and follow all package directions carefully. Purchaser and user assume all risks associated with improper use, or application or other factors beyond Old Bridge's control. Old Bridge warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use subject to the risks referred above.
OLD BRIDGE MAKES NO AND THE LAW SHALL NOT FIND ANY EXPRESSED OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. To the extent consistent with applicable law, purchaser's use and sole remedy against Old Bridge for any cause of action related to the handling or use of this product shall be for damages, for the amount of which shall not exceed the price paid for the product that causes the alleged loss, damages, injury, or other claim to the extent consistent with applicable law. In no event shall Old Bridge be liable for special, indirect, incidental or consequential damages or expenses. By purchasing or using this product, purchaser or user accept the foregoing conditions of sale and limitation of warranty, liability, and remedies.

ENVIRONMENTALLY HAZARDOUS
SUBSTANCE
SOLID, N.O.S. (CUPRIC SULFATE),
9, UN3077, PG III, RQ
CAS NO. 7758-99-8

For Technical Information and MSDS Call Old Bridge Chemicals at (732) 727-2225
or e-mail: sales@oldbridgechem.com
OLD BRIDGE CHEMICALS
554 Waterworks Road
OLD BRIDGE, NEW JERSEY 08857