Quimag Quimicos Aguila Copper Sulfate Crystal

☐ **GRANULAR** ☐ **MEDIUM** ☐ **LARGE** ☐ **BRIQUETTE**

Active Ingredient:

Copper Sulfate Pentahydrate*† 99.00%
Other Ingredients 1.00%
Total: 100.00%

* Metallic copper equivalent 25.2% †CAS No. 7758-99-8

Department of Agriculture
STATE OF HAWAII

LICENSED

PERIOD 2014-2016 LIC. NO.
8852.1

- Algae Control in Impounded Waters, Lakes, Ponds, and Reservoirs
- Algae and Pondweed Control in Irrigation Conveyance Systems
- Control Root Growth in Sewers
- Wood Treatment to Prevent Fungus, Decay and Rot
- Treatment of Schistosome-infected fresh water snails
- Algae and Tadpole shrimp control in rice fields
- Fungus control in various crops as Bordeaux mixture
- Vine kill in potatoes

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.)
See back panel for additional precautionary statements

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 further treatment advice.
If Swallowed	• Call poison control center or doctor for treatment advice. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Have person sip a glass of water if able to swallow. • Do not give anything by mouth to an unconscious person.
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 further treatment advice.
If Inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call 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, doctor, or going for treatment. For emergency information concerning this product, call the National Pesticides Information Center (NPIC) at 1-800-858-7378 Monday through Friday, 7:30 AM to 3:30 PM Pacific Time (NPIC web site: www.npic.orst.edu).

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage. Product causes eye irritation.

See side/back panels for additional precautionary statements

EPA Reg No. 73385-1 EPA Est. No. 073385-MEX-001
Net Contents: 50 lbs. (22.68 kg), 2 lbs. (0.91 kg), and 2000 lbs. (907.18 kg)

PRECAUTIONARY STATEMENTS
HAZARD 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 in these waters.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Mixers, loaders, applicators and other handlers must wear:
- Long-sleeved shirt and long pants
- Chemical resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- Shoes plus socks
- Goggles or faceshield.

Some materials that are chemical resistant to this product are: polyethylene, polyvinyl chloride, barrier-laminate, and butyl, nitrile, neoprene, and natural rubber. If you want more options, follow the instructions for category A on an EPA chemical resistance category selection chart.

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

USER SAFETY RECOMMENDATIONS

Users should: 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.

ENVIRONMENTAL HAZARDS

For Terrestrial Use

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 in water 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-waters or rinsate.

For Aquatic Use

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 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), increases the potential acute toxicity to non-target aquatic organisms.

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, other persons, adults, children, or pets 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 State or Tribe agency responsible for pesticide regulations.

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, greenhouses and handlers of agricultural insecticides. 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 protective equipment (PPE) and restricted-entry interval. 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 the restricted entry interval (REI) of 48 hours for agricultural uses.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is:

- Coveralls
- Chemical resistant gloves made of any waterproof material
- Shoes plus socks
- Protective eyewear

The REI can be reduced to 24 hours for greenhouse uses if the following conditions are met:
For at least seven days following the application of copper-containing products in greenhouses:

- at least one container or station designed specifically for flushing eyes is available in operating condition with the WPS-required decontamination supplies for workers entering the area treated with copper-containing products,
- workers are informed orally, in a manner they can understand:
  - that residues in the treated area may be highly irritating to their eyes,
  - that they should take precautions, such as refraining from rubbing their eyes, to keep the residues out of their eyes,

- that if they do get residues in their eyes, they should immediately flush their eyes with the eye flush container for eye flush station that is located with the decontamination supplies, and
- how to operate the eye flush container or eye flush station.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements 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 this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

For application as a liquid: Do not enter or allow others to enter the treated area until sprays have dried.

For application as a solid: Do not enter or allow others to enter the treated area until dusts have settled.

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.

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.

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 or water 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.

For Groundboom Application:
Do not apply with a nozzle height greater than 4 feet above the crop canopy or water.

COMPATIBILITY WITH APPLICATION EQUIPMENT
When preparing a copper sulfate solution in water, it is best that the mixing container be made of glass or plastic or if a metal container is used, that it either be painted, enameled or copper-lined. The use of a galvanized container causes a chemical reaction to take place by which copper displaces the galvanized coating of the container.

This product may be reactive on metal and masonry surfaces such as galvanized roofing. Avoid contact with metal surfaces. Do not spray on cars, houses, lawn furniture, etc.

It must be determined if proper application equipment is available and if waste associated with its use can be properly handled. Agricultural chemicals are often reactive with the materials used in the construction of application equipment, such as aluminum, rubber and synthetic materials. This factor should be taken into consideration when selecting proper application equipment. It is necessary that all application equipment be thoroughly flushed with clean water after each day's use.

CALCULATIONS FOR THE AMOUNT OF WATER IMPOUNDED AND FOR THE AMOUNT OF COPPER SULFATE CRYSTAL TO BE USED IN IMPOUNDED AND FLOWING WATER

Calculate water volume as follows:

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

Calculations of the amount of Copper Sulfate Crystal to be applied:

To calculate the amount of Copper Sulfate Crystal that will be required to achieve the specified concentration of dissolved copper, multiply the weight of water by the desired concentration of dissolved copper and divide the result by 0.252, the concentration of copper in Copper Sulfate Crystal. For instance, the following calculates that amount of Copper Sulfate Crystal that will be required to cause a one part per million increase in the concentration of dissolved copper in one acre foot of water:

$$\frac{\frac{1\ lb\ copper}{1{,}000{,}000\ lb\ water} \times 1\ acre\ foot\ water \times \frac{2{,}720{,}000\ lb\ water}{1\ acre\ foot\ water}}{\frac{0.252\ lb\ copper}{1\ lb\ Copper\ Sulfate\ Crystal}} = 10.7\ lb\ Copper\ Sulfate\ Crystal$$

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.

NOTE: If treated water is to be used as potable water (after further treatment), the residual metallic copper content must not exceed 1.0 ppm (4 ppm Copper Sulfate Crystal).

AQUATIC ALGAE AND WEED CONTROL

Copper Sulfate Crystal can be used in Slow Moving or Quiescent Bodies of Water, including: Lakes, Potable Water Reservoirs; Golf, Farm, Fish and Fire Ponds; Fish Hatcheries; and Crop and Non-Crop Irrigation Conveyance Systems, Ditches, Canals and Laterals.

Copper Sulfate Crystal effectively controls many species of both filamentous (mat forming green) and planktonic (single cell blue-green) algae.

Use Copper Sulfate Crystal as noted below. When using Copper Sulfate Crystal to control algae, there are many factors to consider: water hardness; temperature of the water; kind and amount of vegetation to be controlled; and the amount of water flow.

Algae can be controlled more easily and effectively if treatment with Copper Sulfate Crystal is made soon after plant growth has started. Small amounts of copper sulfate can effectively control algae in water. However, if treatment is delayed until a large amount of algae is present, larger quantities of copper sulfate may be required. Control of algae in water systems is not always permanent. Usually algae are more difficult to control with copper sulfate when water temperatures are low. The dose rates labeled for copper sulfate are required in hard water. Normally, larger quantities of copper sulfate will be required to kill algae in water which 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 plants have begun to die. 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 they 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.

LAKES, POTABLE WATER RESERVOIRS, PONDS (Golf, Farm, Fish and Fire), FISH HATCHERIES, AND CROP AND NON-CROP IRRIGATION CONVEYANCE SYSTEMS, DITCHES, CANALS AND LATERALS: Copper Sulfate Crystal kills filamentous and planktonic algae in water. Apply at a rate of 3 to 6 pounds per acre foot of water (0.29 ppm to 0.58 ppm copper in the treated water). Apply as a uniform surface spray dissolved in at least 3 to 5 gallons of water using boat, plane or other pressurized spray device. Apply twice yearly or as needed. Determine the number of acre feet of water to be treated. An acre foot of water is equal to one acre of water one foot deep which equals 328,000 gallons or 2,720,000 pounds.

How to Apply: Copper Sulfate Crystal can be applied to impounded water by the following methods:

1. **Application by Dragging Under Water:** Calculate the quantity of Copper Sulfate Crystal required. Place Copper Sulfate Crystal in a burlap or finer mesh bag. Drag the bag attached to a boat or float so that the bag is suspended in the top foot of water. Drag the bag of Copper Sulfate Crystal first near the shoreline and continue outward by moving in parallel lines about 20 to 100 feet apart until the entire area to be treated has been covered. Continue treating the area until all of the Copper Sulfate Crystal has dissolved. Do not treat more than one half of the body of water at one time.

2. **Application by Spraying Solution on Water Surface:** Dissolve the minimum required dose of Copper Sulfate Crystal in water and spray the solution uniformly over the body of water. When spraying a solution of copper sulfate, mix copper sulfate in sufficient water to thoroughly spray the water surface. While the volume per surface acre depends on the type of spray equipment being used, spray volume should be approximately 20 to 500 or more gallons per acre of surface water. Several types of solutions and spraying equipment may be used. Observe previous cautions on the effect of copper sulfate solution on various metals in spraying containers.

3. **Application by Slug Method:** Make a dump of Copper Sulfate Crystal into the irrigation ditch or lateral at ¼ to 2 pounds per cubic foot per second of water per treatment. Repeat about every 2 weeks as needed. A dump is usually necessary every 5 to 30 miles depending on water hardness, alkalinity, and algae concentration. Copper sulfate becomes less effective as the bicarbonate alkalinity increases. Its effectiveness is significantly reduced when the bicarbonate alkalinity exceeds about 150 ppm as calcium carbonate ($CaCO_3$). Do not exceed 4 ppm Copper Sulfate Crystal (1 ppm metallic copper).

4. **Application by Broadcasting:** Dry Copper Sulfate Crystal can be broadcast on the water surface using a properly equipped boat. An air blower can be used to discharge these 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.

5. **Application by Spraying from Airplanes and Helicopters:** Professional personnel licensed by the State Agricultural Extension Service are allowed to apply dry Copper Sulfate Crystal in some states. Rate may not exceed 6 pounds of Copper Sulfate Crystal per acre foot of water.

6. **Application by Injection in Water:** A solution can be made with Copper Sulfate Crystal that can be injected in the water via a piping system.

CROP AND NON-CROP IRRIGATION CONVEYANCE SYSTEMS, DITCHES, CANALS AND LATERALS: Copper Sulfate Crystal controls the *Potamogeton* pondweeds, leafy and sago.

How to Apply: Copper Sulfate Crystal can be applied to **irrigation conveyance systems** by the following methods:

1. **Continuous Application Method:** Using a continuous feeder, apply 1.6 to 2.4 pounds of product per day for each cubic foot per second of water flow rate. These rates will produce 0.074 to 0.11 ppm copper in the treated water.

   Note: For best control of leafy and sago pondweed, it is essential to begin copper sulfate additions when water is first turned into the system or ditch to be treated and continue throughout the irrigation season. Copper sulfate becomes less effective as the bicarbonate alkalinity increases. Its effectiveness is significantly reduced when the bicarbonate alkalinity exceeds about 150 ppm as calcium carbonate ($CaCO_3$). Should copper sulfate fail to control pondweeds satisfactorily, it may

be necessary to either treat the ditch with a suitable approved herbicide or use mechanical means to remove excess growth. In either case, resume copper sulfate addition as soon as possible.

2. **Slug Application Method:** Make a dump of Copper Sulfate Crystal into the irrigation ditch or lateral at ¼ to 2 pounds per cubic foot per second of water per treatment. Repeat about every 2 weeks as needed. A dump is usually necessary every 5 to 30 miles depending on water hardness, alkalinity, and algae concentration. Copper sulfate becomes less effective as the bicarbonate alkalinity increases. Its effectiveness is significantly reduced when the bicarbonate alkalinity exceeds about 150 ppm as calcium carbonate ($CaCO_3$). Do not exceed 4 ppm Copper Sulfate Crystal (1 ppm metallic copper).

COPPER SULFATE REQUIRED FOR THE TREATMENT OF DIFFERENT GENERA OF ALGAE: The genera of algae listed below are commonly found in waters of the United States. The lower rate should be used 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. Do not exceed 0.4 ppm copper (1.6 ppm Copper Sulfate Crystal) if fish are present.

	Copper Sulfate Crystal Rates			
ORGANISM	**¼ to ½ ppm***	**½ to 1 ppm***	**1 to 1 ½ ppm***	**1 ½ to 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 Palmella Pithophora Staurastrum Tetraedon	Ankistrodesmus Chara Nitella Scenedesmus
Diatomaceae (Diatoms)	Asterionella Fragilaria Melosira Navicula	Gomphonema Nitzschia Stephanodiscus Synedra Tabellaria	Achnanthes Cymbella Neidium	
Protozoa (Flagellates)	Dinobryon Synura Uroglena Volvox	Ceratium Cryptomonas Euglena Glenodinium Mallomonas	Chlamydomonas Hawmatococcus Peridinium	Eudorina Pandorina

* ¼ - ½ ppm = 0.67 - 1.3 lbs/acre ft. Copper Sulfate Crystal
* ½ - 1 ppm = 1.3 - 2.6 lbs/acre ft. Copper Sulfate Crystal
*1 ½ ppm = 2.6 - 3.9 lbs./acre ft. Copper Sulfate Crystal
*1 ½ - 2 ppm = 3.9 – 5.32 lbs./acre ft. Copper Sulfate Crystal
NOTE: Do not exceed 0.4 ppm copper if fish are present.

SEWAGE LAGOONS AND PITS (Except California): Application rates may vary depending on amounts of organic matter in effluent stream or retention ponds. Use 2 lbs. of Copper Sulfate Crystal in 60,000 gals. (8,000 cu. ft.) of effluent to yield 1 ppm of dissolved copper. Dose levels may vary depending upon organic load. Other Organic Sludges: Copper Sulfate Crystal solution must be thoroughly mixed with sludge. Dissolve 2 lbs. in 1-2 gals. of water and apply to each 60,000 gals. of sludge.

Useful formulas for calculating water volume flow rates: Multiply the water volume in cu. ft. times 7.5 to obtain gallons.
Note: 1 C.F.S./Hr. = 27,000 Gals. 1 Acre Foot = 326,000 Gals.

CONTROL OF ALGAE AND BACTERIAL ODOR IN SWIMMING POOLS: Apply 1 to 2 lbs. of Copper Sulfate Crystal per 60,000 gals. (8,000 cu. ft.) of water. This will result in a concentration of 0.5 to 1.0 ppm of dissolved copper. Dissolve the required amount of copper sulfate in a plastic container and pour the solution into the pool. Use the higher rate where visible algae are present. For maintenance dosages, use the lower rate. Repeat the lower rate to control the recurrence of algae and avoid the buildup of copper. Copper Sulfate Crystal may be used to help control pool odors and algae during the winter months. Apply the higher rate while the pool is not being used during the winter. Treated pool effluent must not be discharged where it will drain into lakes, streams, ponds, or public water.

CONTROL OF ALGAE AND BACTERIAL ODOR IN WATERSCAPES, DECORATIVE POOLS, AND FOUNTAINS: Apply in the spring or early summer when algae and bacteria first appear. The dosages are variable and depend upon algae/bacteria species, water hardness, water temperature, amount of algae and bacteria present as well as whether the water is clear, turbid, flowing or static. Preferably, the water should be clear with temperatures above 60º F. Higher dosages are required at lower water temperatures, higher algae and bacteria concentrations and for hard waters. For each 7,500 gals. of water, dissolve ¼ lb. Copper Sulfate Crystal in one gallon of water. Pour the solution into the water to be treated. Several application points speed up dispersal. Static water requires less chemical than does flowing water. If uncertain about the dosage, begin with a lower does and increase until control is achieved or until the maximum allowable level of copper has been reached. Do not exceed 0.4 ppm copper (0.1 lb Copper Sulfate Crystal per 7,500 gallons of water) if fish are present.

CONTROL OF ALGAE AND TADPOLE SHRIMP IN RICE FIELDS (DOMESTIC AND WILD)

Algae: After the rice field has been flooded to a depth of 3 inches apply 2.7 pounds of Copper Sulfate Crystal per acre. Adjust the rate according to the average water depth. Do not exceed a concentration of 1.0 ppm copper in the water.

Tadpole Shrimp: After the rice field has been flooded to a depth of 3 inches apply 4 to 6.5 pounds of Copper Sulfate Crystal per acre at the first sign of infestation by tadpole shrimp. Adjust the rate according to the average water depth. Do not exceed a concentration of 2.5 ppm copper in the water.

SEWER TREATMENT - ROOT DESTROYER**

USE INFORMATION: Roots of shrubbery and trees growing near sewer lines frequently penetrate sewer lines in search of moisture and nutrients, even through extremely small cracks, holes, or poorly sealed joints. These tiny root hairs, if not controlled, will continue to grow both in diameter and number, causing tile breakage, gradual reduced flow, and frequently flow stoppage. Copper sulfate has successfully controlled roots for over 50 years in residential and commercial sewers.

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.

To control root growth in Commercial, Institutional, and Municipal Sewers use as follows:

SEWERS: Use 2 pounds of Copper Sulfate Crystal every 6 to 12 months, applied into each junction or terminal manhole as a preventative measure. Add copper sulfate during periods of reduced flow; however, some flow is essential. If reduced flow due to root masses is observed, but flow has not completely stopped, add the copper sulfate in the next manhole above the reduced flow area. If completely blocked, use a rod to penetrate the mass so some flow begins before treatment.

STORM DRAINS: Use 2 pounds of Copper Sulfate Crystal per drain per year. Apply during a period of light water flow. In dry weather, introduce a flow with a hose. If storm drains become almost plugged, repeat treatment 3 or 4 times at 2-week intervals.

SEWER PUMPS AND FORCE MAINS: Place 2 pounds of Copper Sulfate Crystal in a cloth bag at the storage well inlet. Minimum retreatment interval 6 months.

To control root growth in Residential or Household Sewer Systems use as follows:

Make treatment when the reduced flow rate thought to be caused by root growth is first noticed. Do not delay until stoppage has occurred because some flow is needed to move Copper Sulfate Crystal to root growth. When roots accumulate sufficient copper sulfate to cause death, root decay will begin and flow rate should increase in 3 to 4 weeks. Since copper sulfate treatment usually kills only those roots in the pipe, roots will regrow, requiring follow-up treatments. Generally make a treatment in the spring after plants begin to grow, with a second treatment during late summer or early fall each year, or any time when reduced flow possibly caused by root growth is noted, ensuring treatments are spaced 6 months apart.

HOW TO USE COPPER SULFATE CRYSTALS: In household sewers use 2 pounds of crystals twice yearly. Add Copper Sulfate Crystal to sewer line by pouring about ½ pound into the toilet bowl nearest to the sewer line and flush, repeating process until labeled dose has been added, or remove cleanout plug and pour entire labeled quantity directly into the sewer line, replacing plug and flush toilet several times. Do not attempt to flush Briquette size down the toilet as blockage may result.

If system is equipped with a septic tank, copper sulfate will be precipitated in the septic tank and little will pass into the absorption drain field. To treat drain field pipes, add 2 to 6 pounds of Copper Sulfate Crystal to distribution box located between the septic tank and the drain field. If distribution box does not have an opening, it would be advisable to install a cleanout 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 apply Copper Sulfate Crystal through sink or tub drains as it will corrode those metal drains.

NOTE: Laboratory studies have shown that copper sulfate added to an active 300 gallon septic tank at 2, 4 and 6 pounds per treatment temporarily reduced bacterial action, but it returned to normal 15 days after treatment. Trees and shrubbery growing near a treated line normally will have only a small portion of their roots in contact with the copper sulfate that primarily kills only those roots inside the pipe, thus not affecting the growing plants.

****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.**

WOOD TREATMENT
(Green Material)

Prepare a solution of sodium dichromate, sodium dichromate dihydrate or other registered inorganic wood treatment salt in accordance with label directions. Soak green material in this solution for up to 3 days. Prepare a solution of 18 to 36 pounds of Copper Sulfate Crystal in each 24 gallons of water (do not use more than 1.5 pounds per gallon of water); then soak the green material in the Copper Sulfate Crystal solution for up to three additional days, remove and rinse green material with clear water.

SCHISTOSOME-INFECTED FRESH WATER SNAILS

For recreational lakes, reservoirs, and ponds 1.5 ppm of copper (16 pounds of Copper Sulfate Crystal per acre foot), is sufficient for treatment of Schistosome-infected fresh water snails. Use surface area in acres multiplied by average depth in feet to determine water volume and application rate. Apply only along shoreline swimming areas and/or to infected snail beds on a calm sunny day when water temperature is at least 60º F. Not allowing swimming for at least 12 hours following treatment is recommended. A second application may be necessary, 10 to 14 days later. Apply by broadcast using boat, aircraft, or hand equipped with power or hand seeder or underwater dispenser. Do not exceed 1 ppm copper (4 ppm Copper Sulfate) in potable water systems. This labeling must be in the possession of the user at the time of pesticide application. **NOTE: In the state of New York-** For use in recreational lakes, reservoirs, and ponds ONLY in areas where infected snail beds have been identified. Apply medium grade crystals by hand broadcast method of application only. This product is a restricted use pesticide in New York State. Pesticide applicator certification or a special use permit is required for sale, possession, or use. Each individual treatment must be approved by the Department of Environment Conservation. Therefore, you must contact the Pesticide Control Specialist at the appropriate regional office of the Department 30 days in advance of the proposed treatment.

CROP USE DIRECTIONS

Bordeaux Mixtures

How to Understand Bordeaux Formulations - If the Bordeaux Mixture Instructions reads 10-10-100, the first figure means the number of pounds of Copper Sulfate Crystal. The second figure means the pounds of hydrated spray lime, and the third figure, the gallons of water to be used. Use as a full coverage spray.

How to Prepare a Bordeaux Mixture - To prepare a Bordeaux mixture, fill a tank with water, one quarter full. Then with agitator running, mix in Copper Sulfate Crystal through a copper, bronze, stainless steel or plastic screen. Add water so the tank is three quarters full. Mix in the hydrated spray lime through the screen and finish filling the tank with water.

CROP USE DIRECTIONS

Crop[1]: Pest	Season	Copper Mixture	Maximum Rate per Application: pounds Copper Sulfate Crystal per acre[2]	Maximum Rate per Year: pounds Copper Sulfate Crystal per acre [3]	Minimum Retreatment Interval	Use Notes
Almonds, Apricots, Peaches, Nectarines: Shot Hole Fungus (Coryneum Blight)	Fall, Late Dormant	10-10-100 Bordeaux Mixture	31.7/317	71/ 710[11]	7 Days	Apply as a dormant spray in late fall or early spring.
	Bloom, Growing Season (Early Spring)	10-10-100 Bordeaux Mixture	6.0/ 60	71/ 710[11]	5 Days	
Almonds, Apricots, Cherries, Peaches, Nectarines, Plums, Prunes: Brown Rot Blossom Blight	Bloom, Growing Season (Spring)	10-10-100 Bordeaux Mixture	6.0/ 60	71/ 710[11]	5 Days	Apply when buds begin to swell.
Peach: Leaf Curl	Late Fall, early Spring	10-10-100 Bordeaux Mixture	31.7/317	71/710[11]	7 Days	Apply at leaf fall or as a dormant spray before buds begin to swell. If above sprays for Coryneum blight is made, peach curl will also be controlled.
Apples: Fireblight	Fall, Late Dormant	5 lbs of Copper Sulfate per 100 Gallons of Water	31.7/634	31.7/634[11]	N/A (Only 1 application per season permitted)	Spray uniformly to the point of runoff. Apply in dormant only before 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.
Bulbs (Lillies, Easter): Botrytis Blight		10-10-100 Bordeaux Mixture	10/ 100	298/ 2980[4]	7 Days	Apply as a foliar spray to one acre. Apply for thorough coverage beginning at the first sign of disease and repeat 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
Bulbs (Tulip, Gladiolus): Botrytis Blight		10-10-100 Bordeaux Mixture	8.0/ 80	80/ 800	7 Days	

Crop[1]: Pest	Season	Copper Mixture	Maximum Rate per Application: pounds Copper Sulfate Crystal per acre[2]	Maximum Rate per Year: pounds Copper Sulfate Crystal per acre [3]	Minimum Retreatment Interval	Use Notes
						are a problem. Do not apply any additional copper pesticide to this land for 36 months.
Cherries (Sweet): Dead Bud and Bacterial Canker (*Pseudo-monas syringae*)	Fall, Late Dormant	12-12-100 Bordeaux Mixture	31.7/264	71/ 592[11]	7 Days	Apply at leaf fall and again in late winter before buds began to swell. In wet, cool Northwest U.S. winters, a third spray may be needed between above sprays.
Cherries (Sour): Leaf Spot	Fall, Late Dormant	10-10-100 Bordeaux Mixture	31.7/317	71/ 710[11]	7 Days	Apply as a full coverage spray after petal fall or as recommended by State Extension Service.
	Bloom, Growing Season	10-10-100 Bordeaux Mixture	6.0/ 60	71/ 710[11]	5 Days	
Grapes: Downy Mildew (not for use in California)		2-6-100 Bordeaux Mixture	12/ 600	79/ 3950	3 Days	Spray beginning when downy mildew is detected. This mixture and its use will exhibit some phytotoxicity on most varieties.
Grapes, (Dormant): Powdery Mildew (not for use in California)		4-8 lbs of Copper Sulfate 100 Gallons of Water	12/ 300	79/ 988-1975	3 Days	Apply in spring before bud-swell and before green tissue is present. Apply in a high volume spray of 300 gallons water per acre. Direct spray to thoroughly wet the dormant vine, especially the bark of the trunk, head, or cordons.
Olives: Peacock Spot and Olive Knot		10-10-100 Bordeaux Mixture[5]	12.5/ 125	25/ 250	30 Days	Apply in autumn before heavy winter rains to prevent peacock spot. To help protect against olive knot, apply before heavy rains and again in the spring. Injury may occur in areas of less than 10 inches of rainfall.

Crop[1]: Pest	Season	Copper Mixture	Maximum Rate per Application: pounds Copper Sulfate Crystal per acre[2]	Maximum Rate per Year: pounds Copper Sulfate Crystal per acre [3]	Minimum Retreatment Interval	Use Notes
Walnuts: Walnut Blight		15-10-100 Bordeaux Mixture plus ½ Gallon Summer Oil Emulsion[6]	12.5/ 83	100/ 667	7 Days	Apply in early pre-bloom and at 10% to 20% pistillate (not when catkin blooms are showing) just before or after rain.
Citrus: Bacterial Blast		10-10-100 Bordeaux Mixture[7]	12.5/ 125	50/ 500	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 gallons per mature tree.
Lemons, Oranges, Grapefruits: Phytophthora Brown Rot		3-4.5-100 Bordeaux Mixture [7,9]	12.5/ 420	50/ 1700	7 Days	Spray 6 gallons on skirt of tree 3 to 4 feet high, and 2 to 4 gallons on trunk and ground under the tree. If *Phytophthora hibernalis* is present, use 10 to 25 gallons 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.
		3-2-6-100 Bordeaux Mixture[7,8,9]	12.5/ 625	50/ 2500	7 Days	
Lemons, Oranges, Grapefruits: Septoria Fruit and Leaf Spot (Central California), Brown Rot, Zinc and Copper Deficiencies		3-2-6-100 Bordeaux Mixture[8,9]	12.5/ 625	50/ 2500	7 Days	Use 10 to 15 gallons to cover completely each tree. Apply in October, November or December just before or after rain.
Potato: Vine Kill (Ground Equipment)		10 lbs/ Acre in 10 to 100 Gallons of Water[10]	10/ 10-100	99.2/ 99-990	5 Days	To enhance vine-kill and suppress late blight, apply with Diquat at vine-kill to enhance vine desiccation and suppress late blight.

Crop[1]: Pest	Season	Copper Mixture	Maximum Rate per Application: pounds Copper Sulfate Crystal per acre[2]	Maximum Rate per Year: pounds Copper Sulfate Crystal per acre [3]	Minimum Retreatment Interval	Use Notes
Potato: Vine Kill (Aerial Equipment)		10 lbs/ Acre in 5 to 10 Gallons of Water[10]	10/ 5-10	99.2/ 49.5-990	5 Days	Additional applications can be made with Diquat if needed within 7 days of harvest. May be applied alone until harvest to suppress late blight.

[1]Additional Growing Season information provided where applicable.
[2] Maximum Copper Sulfate Crystal (lbs/Acre)/ Maximum Application Volume (Gallons)
[3]Maximum Copper Sulfate Crystal (lbs/Acre)/ Maximum Annual Volume (Gallons)
[4]Maximum pounds of Copper Sulfate Crystal which may be applied in a 12 month period. Do not apply any additional copper pesticide to this land for 36 months.
[5]In areas of less than 10 inches of annual rainfall, use a 5-10-100 Bordeaux mixture.
[6]Use only if Bordeaux mixture has been proven to be non-phytotoxic in your area.
[7]Apply where there is no history of crop injury.
[8]Zinc Sulfate- Copper Sulfate -Hydrated Lime-Gallons of water.
[9]Adding foliar nutritionals to spray mixtures containing Copper Sulfate or other products and applying to citrus during the post bloom period when young fruit is present may result in spray burn.
[10]Note: This product can be mixed with Diquat for use on potatoes in accordance with the most restrictive of label limitations and precautions. Do not exceed the label dosage rates.
[11]Maximum annual amount allowed for all disease applications combined.

GENERAL 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 areas, 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 material 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. 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 filtered with a system interlock. The system must contain a functional check valve, vacuum relief valve, and low pressure drain approximately 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 infection 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 filtered 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 Crystal 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 Crystal 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. Open burning and dumping is prohibited. Do not reuse empty container.

Storage: Store product in a secure dry place. Keep product dry as product is water soluble. When opening, closing or handling open packages, or pouring product, wear goggles to prevent dusting into eyes. Spilled product should be swept up, used if clean, or disposed of according to the procedures below. Store product in original container. Store pesticide separately to prevent cross-contamination of other pesticides, fertilizers, food and feed.
Pesticide Disposal: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.
Container Handling:
Nonrefillable container. Do not reuse or refill this container.
If empty: Offer for recycling if available. Do not reuse or refill this container. 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.
If partly filled: Call your local solid waste agency or 1-800-CLEANUP for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY STATEMENT

FABRICA DE SULFATO EL AGUILA warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with directions under normal use conditions. 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, or the manner of use or application, all of which are beyond the control of FABRICA DE SULFATO EL AGUILA. To the extent permitted by applicable law, FABRICA DE SULFATO EL AGUILA shall not be liable for consequential, special or indirect damages resulting from the use or handling of this product. To the extent permitted by applicable law, all such risks shall be assumed by the Buyer. To the extent permitted by applicable law exclusive remedy of any buyer or user of this product for any and all losses, injuries, or damages resulting from or in any way arising from the use, handling or application of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid for this product or at FABRICA DE SULFATO EL AGUILA's election, the replacement of this product. FABRICA DE SULFATO EL AGUILA MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

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