

73385-1

8/8/2012

1/19



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Fabrica de Sulfato El Aguila S A de C V
c/o Crystal Layton
Landis International Inc
PO Box 5126
Valdosta GA 31603 5126

AUG 0 8 2012

Subject Labeling Amendment to Quimag Quimicos Aguila Copper Sulfate Crystal
EPA Registration No 73385 1
Decision No 467219
Submission Date 6/27/12

Dear Ms Layton

The labeling referred to above submitted under the Federal Insecticide Fungicide and Rodenticide Act as amended to add a 24 REI for greenhouse uses as per the Copper RED and remove application restrictions in California is acceptable provided you make the following change

- 1 On page 1 revise the days and hours of operation for NPIC to Monday through Friday 7 30 am to 3 30 pm Pacific Time

A copy stamped Accepted with Comments is enclosed for your records Please submit one (1) final printed copy for the above mentioned label before releasing the product for shipment If you have any questions please contact Dominic Schuler at (703) 347 0260 or via email at schuler.dominic@epa.gov

Sincerely

Tony Kish
Product Manager 22
Fungicide Branch
Registration Division (7504P)

2/19

Quimag Quimicos Agula Copper Sulfate Crystal

GRANULAR MEDIUM LARGE BRIQUETTE

Active Ingredient

Copper Sulfate Pentahydrate*†	99 00%
Other Ingredients	<u>1 00%</u>
Total	100 00%

* Metallic copper equivalent 25 2% †CAS No 7758 99 8

- 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

**ACCEPTED
with COMMENTS
In EPA Letter Dated**

AUG 0 8 2012

**Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg No**

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

73385-1

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 seven days a week, 6 30 AM to 4 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

3/19

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 1/2 of the water body to avoid depletion of oxygen due to decaying vegetation Wait at least 14 days between treatments Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas Consult with the State or local

agency with primary responsibility for regulating pesticides before applying to public waters to determine if a permit is required

Certain water conditions including low pH (≤ 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 24 hours for greenhouse uses or 48 hours for all other 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

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

5/19

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 unless a greater height is required for aircraft safety.

6/19

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.

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.

$$\frac{\frac{1 \text{ lb copper}}{1,000,000 \text{ lb water}} \times 1 \text{ acre foot water} \times \frac{2,720,000 \text{ lb water}}{1 \text{ acre foot water}}}{0.252 \text{ lb copper}} = 107 \text{ lb Copper Sulfate Crystal}$$

1 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 recommended 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.

8/19

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 $\frac{1}{4}$ 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

9/19

calcium carbonate (CaCO₃) 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 (CaCO₃) 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 recommended 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

ORGANISM	Copper Sulfate Crystal Rates			
	¼ to ½ ppm*	½ to 1 ppm*	1 to 1 ½ ppm*	1 / 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 Golenkima 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 / ppm = 0.67 1.3 lbs/acre ft Copper Sulfate Crystal 1 ½ ppm = 2.6 3.9 lbs/acre ft Copper Sulfate Crystal * ½ 1 ppm = 1.3 2.6 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				

10/19

SEWAGE LAGOONS AND PITS 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 should 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 60° 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 dose 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

11/19

SEWER TREATMENT ROOT DESTROYER**

GENERAL 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 and/or any time when reduced flow possibly caused by root growth is noted

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 recommended dose has been added or remove cleanout plug and pour entire recommended 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

12/19

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 usually 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 60° 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

13/19

FERTILIZER RECOMMENDATIONS

Wisconsin State Copper Fertilizer Recommendations^a

Crop	Pounds copper per Acre					
	Sands		Loams silts clays		Organic	
	Bdct ^b	Band	Bdct ^b	Band	Bdct ^b	Band
Lettuce onion spinach	10	2	12	3	13	4
Carrot cauliflower celery alfalfa clover corn oat radish sudan grass wheat	4	1	8	2	12	3
Asparagus barley beans beet broccoli mint pea potato rye soybean	0	0	0	0	0	2

^aRecommendations are for inorganic sources of copper. Copper chelates can also be used at 1/6 of the rates recommended above. Do not apply copper unless a deficiency has been verified by plant analysis.

^bBdct = broadcast

Washington and Oregon State Fertilizer Use

Information received by the Washington State Department of Agriculture regarding the components of this product is available on the internet at <http://agr.wa.gov>. Information regarding the contents and levels of metals in this product is available at the Oregon Department of Agriculture internet site <http://oda.state.or.us/fertilizer>.

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 to runoff.

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 Bloom Growing Season (Early Spring)	10 10 100 Bordeaux Mixture 10 10 100 Bordeaux Mixture	32/ 320 6 0/ 60	71/ 710 71/ 710	7 Days 5 Days	Apply as a dormant spray in late fall or early spring
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	5 Days	Apply when buds begin to swell
Peach Leaf Curl	Late Fall early Spring	10 10 100 Bordeaux Mixture	32/320	71/710	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	32/ 640	32/640	N/A (Only 1 application per season permitted)	Spray uniformly to the point of runoff. Apply in dormant only at 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 (Lilies 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.
Bulbs (Tulip Gladiolus) Botrytis Blight		10 10 100 Bordeaux Mixture	8 0/ 80	80/ 800	7 Days	

15/19

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
						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
Cherries (Sweet) Dead Bud and Bacterial Canker (<i>Pseudomonas syringae</i>)	Fall Late Dormant	12 12 100 Bordeaux Mixture	32/ 267	71/ 592	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	32/ 320	71/ 710	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	5 Days	
Grapes Downy Mildew		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		4 8 lbs of Copper Sulfate 100 Gallons of Water	12/ 150 300	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 Directly 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
Walnuts Walnut Blight		15 lbs Copper	12 5/ 83	100/ 667	7 Days	Apply in early pre bloom and at 10% to 20%

16/19

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
		Sulfate with 10 lbs of Lime in 100 Gallons of Water plus 1/2 Gallon Summer Oil Emulsion ⁶				distillate (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 <i>Phytophthora hibernalis</i> 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 or dry 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

17/19

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

¹Additional Growing Season information provided where applicable
²Maximum Copper Sulfate Crystal (lbs/Acre)/ Maximum Application Volume (Gallons)
³Maximum Copper Sulfate Crystal (lbs/Acre)/ Maximum Annual Volume (Gallons)
⁴Maximum 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
⁵In areas of less than 10 inches of annual rainfall use a 5 10 100 Bordeaux mixture
⁶Use only if Bordeaux mixture has been proven to be non phytotoxic in your area
⁷Apply where there is no history of crop injury
⁸Zinc Sulfate Copper Sulfate Hydrated Lime Gallons of water
⁹Adding 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
¹⁰Note 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

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

18/19

containing the word STOP Below the symbol shall be the words PESTICIDES IN IRRIGATION WATER All words shall consist of letters at least 2 1/2 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 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 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

19/19

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 Disposal (Paper Bag)

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 injury 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

Manufactured By

FABRICA DE SULFATO EL AGUILA, S A DE C V
Carr Guadalajara Chapala Km 17 5 N° 8100
Tlajomulco de Zuñiga Jalisco C P 45640 Mexico