

81882-2

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**U.S. ENVIRONMENTAL PROTECTION AGENCY**  
**Office of Pesticide Programs**  
**Registration Division (7505P)**  
**Ariel Rios Building**  
**1200 Pennsylvania Ave., NW**  
**Washington, D.C. 20460**

EPA Reg. Number:

81882-2

Date of Issuance:

MAY 14 2008

**NOTICE OF PESTICIDE:**

☒ Registration  
☐ Reregistration  
(under FIFRA, as amended)

Term of Issuance: **Conditional**

Name of Pesticide Product:

**Triangle Brand Copper Sulfate  
Crystal**

Name and Address of Registrant (include ZIP Code):

Phelps Dodge Sierrita, Inc.  
P.O. Box 527; Green Valley, AZ 85622

c/o Landis International, Inc.  
P.O. Box 5126  
Valdosta, GA 31603-5126

**Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.**

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act. Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA sec. 3(c)(7)(A) provided that you:

1. Submit and/or cite all data required for registration of your product under FIFRA Section 3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for re-registration of your product under FIFRA Section 4.
2. Submit the one-year GLP storage stability and corrosion characteristics data requirements by 12/31/09.
3. Submit one copy of a final printed label (along with a copy of this notice) within 30 days from the date of this notice which makes the following changes:

A. Add the EPA registration number 81882-2 to the label

(continued)

Signature of Approving Official:

Tony Kish  
Product Manager, Team 22  
Fungicide Branch  
Registration Division (7505P)

Date:

MAY 14 2008

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B. In the "Environmental Hazards" section:

On page 2, delete the first two sentences and last two sentences of the first paragraph.

On page 3, delete the last two paragraphs "This product...or rinsate".

C. On page 4, in the directions for use, delete the entire second paragraph "Do not apply...pesticide regulations". It's already mentioned above this paragraph.

D. On page 5, delete the potatoes use directions because this product has only non-crop uses.

E. On page 8, vertically line up the headings and rows of organisms better. Use the "flush left" mode on all. Also, delete "the" from "The higher the concentration is required...".

F. On page 9, in the weed section, add "Do not exceed 1.0 ppm (as copper) for any application".

G. On page 10, in the notice to buyer, add "To the extent consistent with applicable law" in front of "Buyer assumes all risk...".

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA Section 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A copy of the label stamped "Accepted with comments" is enclosed for your records.

# TRIANGLE BRAND

## COPPER SULFATE CRYSTAL

FOR CONTROL OF WEEDS, ALGAE, SNAILS, AND MICROSCOPIC ORGANISMS IN IMPOUNDED  
WATER SOURCES (e.g., TANKS, RACEWAYS, PONDS, LAKES, AND RESERVOIRS)

### ACTIVE INGREDIENT:

Copper sulfate pentahydrate\* .....99.0%  
OTHER INGREDIENTS .....1.0%  
TOTAL .....100.0%

\*Metallic copper equivalent 25.2%

**KEEP OUT OF REACH OF CHILDREN**

### DANGER/PELIGRO

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

### Information for Right-to Know States:

Copper sulfate pentahydrate/CAS Reg. No. 7758-99-8; sulfuric acid, copper (2+) salt(1:1)/  
CAS Reg. No. 7758-98-7; Water/CAS Reg. No. 7732-18-5

FIRST AID	
If in eyes	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
If on skin or clothing	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
If swallowed	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have a person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
If Inhaled	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact CHEMTREC at 1-800-424-9300 for emergency medical treatment information.	
<b>NOTE TO PHYSICIAN:</b> Probable mucosal damage may contraindicate the use of gastric lavage.	
See side panel for additional precautionary statements.	

EPA Reg. No. 81882-E

EPA Est. No. 081882-AZ-001

Manufactured By:  
**PHELPS DODGE SIERRITA, INC.**  
P. O. Box 527  
Green Valley, AZ 85622

Net Weight  
50 Lbs/22.68 Kg.

**ACCEPTED**  
with **COMMENTS**  
In EPA Letter Dated  
MAY 14 2008

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

81882-2

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
DANGER**

Potable water sources treated with copper products may be used as drinking water only after proper additional potable water treatments.

Corrosive. Causes irreversible eye damage. Avoid contact with skin or clothing. May be fatal if swallowed. Do not get in eyes, skin, or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses). Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse. Keep out of reach of pets.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Mixers, loaders, applicators, and other handlers must wear long-sleeve shirt and long pants, shoes plus socks, chemical-resistant gloves made of any waterproof material, and protective eyewear (goggles, face shield or safety glasses).

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.

**USER SAFETY RECOMMENDATIONS**

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

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

**ENVIRONMENTAL HAZARDS**

This pesticide is toxic to fish and aquatic organisms. For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to fish and aquatic organisms in adjacent sites. Direct application of copper sulfate to water may cause a significant reduction in populations of aquatic invertebrates, plants, and fish. Do not treat more than one-half of lake or pond at one time to avoid depletion of oxygen levels due to decaying vegetation. Allow one to two weeks between treatments for oxygen levels to recover.

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 10 to 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.

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

Trout and other species of fish may be killed at application rates recommended on this label, especially in soft or acid waters. However, fish toxicity generally decreases when the hardness of water increases. Do not contaminate water when disposing of equipment washwaters. Consult your State Fish and Games Agency before applying this product to public waters. Permits may be required before treating such waters.

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. For terrestrial uses, 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.

Certain water conditions including low pH ( $\leq 6.5$ ), 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.

This product may contaminate water through runoff. 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.

For terrestrial uses: Do not apply directly to water or 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 washwater or rinsate.

(If product is intended for outdoor use, follow the Storage and Disposal statements below):

### STORAGE AND DISPOSAL

**PESTICIDE STORAGE:** Do not contaminate water, food, or feed by storage or disposal. Store unused product in original container only in a cool, dry area out of reach of children and animals. If container or bag is damaged, place the container or bag in a plastic bag. Shovel any spills into plastic bags and seal with tape.

Keep away from galvanized pipe and nylon equipment. In the event copper sulfate solution is spilled, neutralize with limestone or baking soda before disposal. Copper sulfate solution may deteriorate concrete.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of 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. Open dumping is prohibited.

**CONTAINER DISPOSAL:** Do not reuse or refill this container. Completely empty container by shaking and tapping sides and bottom to loosen clinging particles. Place the pesticide into application equipment. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container  $\frac{1}{4}$  full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then dispose of container in a sanitary landfill or by incineration if allowed by State and local authorities. If burned, stay out of smoke. Offer for recycling if available.

(If product is intended for household sewer treatment, use the following Disposal statements):

**DISPOSAL:** If empty, do not reuse container. Place in trash or offer for recycling if available. 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 unless instructed to do so in the "Directions for Use."

### 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 through any type of irrigation system. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

Do not apply this product in a way that will contact adults, children, or pets, either directly or through drift.

### 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, forest, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal 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.

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, shoes plus socks, chemical-resistant gloves made of any waterproof material, and protective eyewear.

### 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.

Applicators and other handlers who made this pesticide for any use not covered by the Worker Protection Standard (40 CFR Part 170) must wear long-sleeved shirt, chemical-resistant gloves made of any waterproof material, shoe plus socks, and protective eyewear.

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

Tadpole shrimp in rice fields may be effectively controlled by the prompt and proper use of Copper Sulfate Crystal. After the rice has been flooded to a depth of 6 to 8 inches, the Copper Sulfate Crystal should be uniformly applied at a rate of 10 to 15 pounds per acre at the first sign of infestation. Following these directions carefully must keep the concentration of copper sulfate less than 10 ppm. The "Diamond" size crystals are especially graded for maximum solubility.

### POTATOES (Except California)

To enhance vine-kill and suppress late blight, apply 10 lbs. per acre in 10 to 100 gallons of water (ground equipment) or in 5 to 10 gallons (aerial equipment) with Diquat at vine-kill to enhance vine desiccation and suppress late blight. Additional applications can be made with Diquat if needed within 7 days of harvest. Triangle Brand Copper Sulfate Crystal may be applied alone until harvest to suppress late blight. NOTE: This product can be mixed with Diquat for use on potatoes in accordance with the most restrictive of label limitations and precautions. Do not exceed label dosage rates.

### SEWER TREATMENT FOR ROOT AND FUNGUS CONTROL\*

Roots of shrubbery and trees growing near sewer lines frequently penetrate sewer lines in search of moisture and nutrients. If not controlled, root hairs will grow in diameter and number causing tile breakage, gradual reduced flow, and sometimes complete stoppage. Copper Sulfate Crystal is effective in keeping sewer lines free of roots. It is safe for drain systems and does not harm outdoor shrubbery or trees. Do not apply into sink or tub drains as it will corrode these metal drains.

**FOR PARTIAL STOPPAGE:** Add 1/2 pound of Copper Sulfate Crystal to sewer or drain and flush toward blockage with 5 gallons of water. Repeat at 6 month intervals to prevent growth of new roots.

**FOR COMPLETE STOPPAGE:** Physically remove the root blockage and repeat as above.

**FOR HOUSEHOLD SEWERS:** Use 2 lbs. Copper Sulfate Small Crystal up to four times/year at 2 lbs. each year in spring and early fall. Apply in toilet bowl near sewer line. Flush 1/2 lb portions at a time. Or, remove the cleanout plug and pour entire quantity directly into sewer line and flush with water.

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 lbs. 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:** Laboratory studies have shown that copper sulfate added to an active 300 gal. septic tank at 2 lbs. 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.

**FOR COMMERCIAL, INSTITUTIONAL AND MUNICIPAL USE:**

**SEWERS:** Use 2 lbs. of Copper Sulfate Small Crystal up to four times/year at 2 lbs. to each junction or terminal manhole.

**STORM DRAINS:** Use 2 lbs. of Copper Sulfate Small Crystal per drain per year. Apply during period of light flow. In dry weather, induce a flow with hose. If storm drains become almost plugged, repeat treatment up to four times/year at 2 lbs. each.

**SEWER PUMPS AND FORCE MAINS:** Place 2 lbs. of Copper Sulfate Small Crystal in a cloth bag at the storage wall inlet. Repeat as needed.

\*State laws prohibit the use of this product in sewage systems in Connecticut and in the following nine counties in California: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma.

**CONTROL OF WEEDS, ALGAE, AND MICROSCOPIC ORGANISMS IN  
IMPOUNDED WATER SOURCES (e.g., TANKS, RACEWAYS, PONDS, LAKES,  
AND RESERVOIRS)**

It is a violation of New York State Law for anyone to apply this product to surface waters unless he is either privately or commercially certified in category 5 (aquatic), or possesses a purchase permit for the specific application proposed.

**PRECAUTION CONCERNING FISH:** The treatment of algae with Copper Sulfate Crystal can result in oxygen loss in the water from decomposition of dead algae. This can cause the fish to suffocate. Care should be taken when water temperature exceeds 85°F. At this water temperature, aquatic plants treated with copper sulfate decompose rapidly causing an increase in oxygen depletion. Therefore, to minimize this hazard, treat 1/3 to 1/2 of the water area in a single



operation. Wait 7 to 14 days between treatments. Begin treatments along the shore and proceed outwards in bands to allow fish to move into untreated water.

**APPLICATION BY DRAGGING COPPER SULFATE CRYSTAL UNDER WATER:** Large or small sized Copper Sulfate Crystal is placed in burlap bags or baskets and dragged through the water by means of a boat. Begin treatment along the shoreline and proceed outward until 1/3 and 1/2 of the total area has been treated. The path of the boat should insure a distribution that is even. In large lakes, the boat should move in parallel lines about 60 feet apart. Continue dragging until all of the weighed Copper Sulfate Crystal is dissolved.

**APPLICATION BY SPRAYING COPPER SULFATE CRYSTAL SOLUTION ON WATER SURFACE:** A solution can be made with Copper Sulfate Powder or Fine Crystal which dissolve easily in water. This solution can be sprayed on the pond or lake surface from a boat. When using this method, the wind direction is important as well as the operation of the boat. Do not endanger people or animals in the boat with the copper sulfate spray.

**APPLICATION BY INJECTING COPPER SULFATE SOLUTION IN WATER:** A solution can be made with Copper Sulfate Powder or Crystal. This solution can then be injected into the water via a piping system.

**APPLICATION BY BROADCASTING DRY COPPER SULFATE CRYSTAL:** Crystals may be broadcast directly on the water surface from the shore or from a properly equipped boat. Triangle Brand Crystals ranging from  $\pm 10$  mesh to  $\pm 1/2$  inch are preferred for this method of application. A specifically equipped air blower can be used to discharge these size crystals at a specific rate over the surface of the water. When using this method, the wind direction is an important factor. Do not use this method unless completely familiar with this type of application.

**APPLICATION BY SPRAYING DRY COPPER SULFATE CRYSTAL FROM AIRPLANES AND HELICOPTERS:** Professional personnel licensed by the State Agricultural Extension Service are allowed to apply Copper Sulfate Crystal in some states.

If treated water is to be used as an eventual source of potable water (after further treatment), the metallic residual must not exceed 1 ppm copper. This equals 10.64 pounds per acre foot of water of 4 ppm of this product.

#### **HOW TO FIND THE POUNDS OF COPPER SULFATE TO ADD TO WATER**

To find acre-feet of water in a body of water, measure the body of water in feet. Calculate the surface area in square feet, divided by 43,560 (sq. ft./acre) times the average depth in feet.

1 acre-foot of water	=	Water measuring 208.7 ft. long by 208.7 ft. wide by 1 ft. deep.
1 acre-foot of water	=	43,560 cubic feet of water
1 cubic foot of water	=	62.4 pounds.
1 acre-foot of water	=	$(43,560)(62.4) = 2,720,000$ pounds.

### COPPER SULFATE PENTAHYDRATE IN WATER

POUNDS OF COPPER SULFATE CRYSTAL PER ACRE-FOOT OF WATER	PARTS (BY WT.) COPPER SULFATE CRYSTAL PER MILLION PARTS (BY WT.) OF WATER	PARTS (BY WT.) COPPER PER MILLION PARTS (BY WT.) OF WATER
0.68#/acre-foot	= 1/4ppm	= 0.0625 ppm
1.36#/acre-foot	= 1/2ppm	= 0.125 ppm
2.72#/acre-foot	= 1ppm	= 0.25 ppm
5.44#/acre-foot	= 2ppm	= 0.50 ppm

### TREATMENT OF SOME ALGAE WITH COPPER SULFATE CRYSTAL

Dosage is in ppm of Copper Sulfate Crystal. The higher the concentration is required if the water is hard. Consult with the State Fish and Game Agency before applying product in municipal waters.

0.25 to 0.50 ppm

0.50 to 1.00 ppm

1.00 to 1.50 ppm

1.50 to 2 ppm

### CYANOPHYCEAE ORGANISM (BLUE GREEN)

Anabaena	Cylindrospermum	Nostoc	Calothrix
Anacystis	Oscillatoria	Phormidium	Symploca
Aphanizomenon	Plectonema		
Gloeotrichia			
Gomphosphaeria			
Polycystis			
Rivularia			

### CHLOROPHYCEAE ORGANISM (GREEN)

Closterium	Botryococcus	Chlorella	Ankistrodemus
Hydrodictyon	Cladophora	Crucigenia	Chara*
Spirogyra	Coelastrum	Desmidium*	Nitella*
Ulothrix	Draparnaldia	Golenkinia	Scenedesmus
	Enteromorpha	Oocystis	
	Gloeocystis	Palmella	
	Microspora	Pithophora*	
	Tribonema	Staurostrum	
	Zygnema	Tetraedron	

### DIATOMACEAE ORGANISM (DIATOMS)

Asterionella	Gomphonema	Achnanthes
Fragilaria	Nitzschia	Cymbella
Melorias*	Stephanodiscus	Neidium
Navicula	Synedra	
	Tabellaria	

## PROTOZOA ORGANISM (FLAGELLATES)

Dinobryon	Ceratium	Chlamydomonas	Eudorina*
Synura	Cryptomonas	Hawmatococcus*	Pandorina*
Uroglena*	Euglena	Peridinium	
	Glenodinium		
	Mallomonas		

\*Not for use in California

## CONTROL OF WEEDS AND ALGAE IN FLOWING WATER

Potamogeton pondweeds, leafy and sago, in irrigation conveyance systems: Use the continuous application method, selecting proper equipment to supply Copper Sulfate Crystal at 0.25 to 0.5 pounds per hour for each cubic foot per second of flow for 12 hours of each 24 hours. For best control, begin copper sulfate additions when water is first turned into system to be treated and continue throughout the irrigation season. Copper Sulfate Crystal becomes less effective for mature plants. Copper Sulfate Crystal becomes less effective as the bicarbonate alkalinity increases and is substantially reduced above 150 ppm as  $\text{CaCO}_3$ . Mechanical or other means may then be required to remove excess growth.

Algae (such as filamentous green, pigmented flagellates, diatoms) in irrigation conveyance systems: Begin continuous addition when water is first turned on, using suitable equipment to uniformly deliver 0.1 to 0.2 pounds of Copper Sulfate Crystal per hour per cubic foot per second of flow for 12 of each 24 hours. (Note: Copper Sulfate Crystal comes in several "free flowing" crystal sizes but should be selected to match requirements of your feeder.)

Algae and weeds in irrigation systems by "slug" method of addition: Make a dump of Copper Sulfate Crystal into the irrigation ditch or lateral at 1/2 to 2 pounds 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.

## CONTROL OF SNAILS IN IMPOUNDED WATERS (except California)

Application to Recreational Lakes, Reservoirs, and Ponds (Golf, Farm, Fish and Fire): Apply 5.44 – 10.88 lbs/acre-ft. Copper Sulfate Crystal (i.e. 2-4 ppm copper sulfate crystal), is usually sufficient for treatment of 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. Do not allow swimming for at least 12 hours following treatment. If this lower dosage is not sufficient, up to 6 ppm copper sulfate, i.e. 16.32 lbs/acre-ft. bottom surface area can be applied. Do not allow swimming for 48 hours. Using either dosage, a second application may be necessary, 10 to 14 days later. DO NOT make more than two applications per calendar year. Apply by broadcast using boat, aircraft, or hand equipped with power or hand seeder or underwater dispenser. Do not exceed 1.0 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 (Golf, Farm, Fish and Fire) ONLY in areas where infected snails 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

Environmental 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.

### **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 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 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. Dosage 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 30,000 gals. of sludge.

Useful formulas for calculating water volume and 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 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 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 1/4 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.

### **NOTICE TO BUYER**

Seller makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Buyer assumes all risk of use and/or handling of this material when such use and/or handling is contrary to label instructions.

**WARRANTY STATEMENT**

PHELPS DODGE SIERRITA, INC. 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 PHELPS DODGE SIERRITA, INC. To the extent consistent with applicable law, PHELPS DODGE SIERRITA, INC. shall not be liable for consequential, special or indirect damages resulting from the use or handling of this product. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer. To the extent consistent with 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 PHELPS DODGE SIERRITA INC.'s election, the replacement of this product. PHELPS DODGE SIERRITA, INC. MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

**DOT Hazard Class**

**RQ, Environmentally Hazardous Substances,  
Solid, n.o.s., (Cupric Sulfate), 9, UN 3077, III**

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