PM 22 1278-8 1079

NOV 19

Phelphs Dodge Refining Corporation
c/o Alice Walker, Ph.D.
Regulatory Consulting
47 Country Club Drive
Senatobia, MS 38668

Gentlemen:

Subject: Add Baskets as a Means of Application
Triangle Brand Copper Sulfate Pentahydrate Algicide-Herbicide
EPA Registration No. 1278-8
Your Submission Dated October 13, 1993

The amendment referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended is acceptable provided that you submit one (1) copy of your final printed labeling before you release the product for shipment.

A stamped copy of the labeling is enclosed for your records.

Sincerely yours,

/S/

Cynthia Giles-Parker
Product Manger (22)
Fungicide Herbicide Branch
Registration Division (7505C)

Enclosure

Jacket #29

PHELPS DODGE REFINING CORPORATION

TRIANGLE BRAND
COPPER SULFATE PENTAHYDRATE
ALGICIDE-HERBICIDE

Not for medicinal use

ACTIVE INGREDIENT:
Copper sulfate pentahydrate*..... 99.0%
INERT 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: sulfuric acid, copper (2+) salt (1:1)/
CAS Reg. No. 7758-98-7; Water/CAS Reg. No. 7732-18-5

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED: Drink promptly a large quantity of milk, egg white, gelatin solution, or if these are not available, large quantities of water. Avoid alcohol. Do not give anything by mouth to an unconscious person.
NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsions may be needed.
IF IN EYES: Immediately flush eyes with plenty of water for at least 15 minutes and get medical attention.
IF ON SKIN: Remove contaminated clothes and shoes; immediately wash skin with soap and plenty of water and get medical attention.
IF INHALED: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth, and get medical attention.

EPA Reg. No. 1278-8

ACCEPTED
with COMMENTS
In EPA Letter Dated:
NOV 19 ...

Under the Federal Insecticide ... and Rodenticide Act as amended, for the pesticide ... registered under EPA Reg. No. 1278-8

EPA Est No. 1278-TX-1

Manufactured by
Phelps Dodge Refining Corporation
El Paso, Texas 79998

Net Weight
50 Lbs./22.68 Kg.

PRECAUTIONARY STATEMENTS
DANGER
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Causes severe eye and skin irritation. Harmful if swallowed, inhaled, or absorbed through the skin. Avoid breathing mist or dust and contact with skin, eyes, or clothing. Causes substantial but temporary eye injury. May cause skin sensitization reactions in certain individuals.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, shoes plus socks, protective eyewear, and dust/mist filtering respirator (MSHA/NIOSH approval number TC-21C).

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.

USER SAFETY RECOMMENDATIONS

User 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.

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 Game Agency before applying this product to public waters. Permits may be required before treating such waters.

STORAGE AND DISPOSAL
DO NOT CONTAMINATE WATER, FOOD, OR FEED BY STORAGE OR DISPOSAL.
STORAGE

Store 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.

DISPOSAL

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 empty container. Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Place the pesticide into application equipment. Then dispose of liner in a sanitary landfill or by incineration if allowed by State and local authorities. If burned, stay out of smoke.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

OK as well

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 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.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 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, waterproof gloves, shoes plus socks, 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.

Protective clothing, including goggles, should be worn.

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. After the rice field has been flooded to a depth of 6 to 8 inches, the Copper Sulfate should be uniformly applied at a rate of 10 to 15 pounds per acre at the first sign of infestation. Following these directions carefully should keep the concentration of copper sulfate less than 10 ppm. The "Diamond" size crystals are especially graded for maximum solubility.

SEWER TREATMENT FOR ROOT AND FUNGUS CONTROL

Phelps Dodge Refining Corporation Triangle Brand Copper Sulfate Pentahydrate is effective in keeping sewer lines free of roots.

FOR PARTIAL STOPPAGE: Add 1/2 pound of Phelps Dodge Refining Corporation Triangle Brand Copper Sulfate Pentahydrate 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 to 6 lbs. Copper Sulfate Small Crystals twice yearly in spring and early fall. Apply in toilet bowl near sewer line. Flush 1/2 lb. portions at a time. Or, remove the clean-out plug and pour entire quantity directly into sewer line and flush with water.

FOR COMMERCIAL, INSTITUTIONAL AND MUNICIPAL USE:

SEWERS: Use 2 lbs. of Copper Sulfate Small Crystals each 6 to 12 months, applied to each junction or terminal manhole.

STORM DRAINS: Use 2 lbs. of Copper Sulfate Small Crystals 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 3 or 4 times at two week intervals.

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

CONTROLLING WEEDS, ALGAE, AND MICROSCOPIC ORGANISMS

TO CONTROL ALGAE IN IMPOUNDED WATERS, LAKES, PONDS, AND RESERVOIRS

PRECAUTION CONCERNING FISH

The treatment of algae with Copper Sulfate can result in oxygen loss in the water from decomposition of dead algae. This can cause the fish to suffocate. 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 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 to 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 is dissolved.

APPLICATION BY SPRAYING COPPER SULFATE SOLUTION ON WATER SURFACE

A solution can be made with Copper Sulfate Powder or Fine Crystals which dissolve easily in water. This solution can then 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 SPRAYING DRY COPPER SULFATE CRYSTAL FROM AIRPLANES

Professional personnel licensed by the State Agricultural Extension Service are allowed to apply Copper Sulfate Crystals in some states.

If treated water is to be used as a source of potable water, the metallic residual must not exceed 1 ppm copper. This equals 10.64 pounds per acre foot of water or 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 PENTAHYDRATE PER ACRE-FOOT OF WATER	=	PARTS (BY WEIGHT) COPPER SULFATE PENTAHYDRATE PER MILLION PARTS (BY WEIGHT) OF WATER	=	PARTS (BY WEIGHT) COPPER PER MILLION PARTS (BY WEIGHT) OF WATER
0.67#/acre-foot	=	1/4 ppm	=	0.0625 ppm
1.3#/acre-foot	=	1/2 ppm	=	0.125 ppm
2.6#/acre-foot	=	1 ppm	=	0.25 ppm
5.32#/acre-foot	=	2 ppm	=	0.50 ppm

TREATMENT OF SOME ALGAE WITH COPPER SULFATE PENTAHYDRATE

Dosage is in ppm of copper sulfate pentahydrate. A higher 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	Cruciqenia	Chara
Spirogyra	Coelastrum	Desmidium	Nitella
Ulothrix	Draparnaldia	Golenkinia	Scenedesmus
	Enteromorpha	Oocystis	
	Gloeocystis	Palmella	
	Microspora	Pithophora	
	Tribonema	Staurastrum	
	Zygnema	Tetraedron	

0.25 to 0.50 ppm	0.50 to 1.00 ppm	1.00 to 1.50 ppm	1.50 to 2 ppm

DIATOMACEAE ORGANISM (DIATOMS)

Asterionella	Gomphonema	Achnanthes
Fraqilaria	Nitzschia	Cymbella
Melorias	Stephanodiscus	Neidium
Navicula	Synedra	
	Tabellaria	

PROTOZOA ORGANISM (FLAGELLATES)

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

TO CONTROL ALGAE AND WEEDS IN FLOWING WATER

TO CONTROL POTAMOGETON PONDWEEDS, leafy and sago, in irrigation conveyance systems, use the continuous application method, selecting proper equipment to supply copper sulfate crystals 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 becomes less effective for mature plants. Copper sulfate becomes less effective as the bicarbonate alkalinity increases and is substantially reduced above 150 ppm as CaCO3. Mechanical or other means may then be required to remove excess growth.

TO CONTROL 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 per hour per cubic foot per second of flow for 12 of each 24 hours. (Note: Triangle Copper Sulfate comes in several "free flowing" crystal sizes but should be selected to match requirements of your feeder.)

TO CONTROL ALGAE AND WEEDS IN IRRIGATION SYSTEM BY "SLUG" METHOD OF ADDITION, add 1/2 to 2 pounds for each cubic foot per second of flow. Repeat every two weeks. A pile is required for every 5 to 30 miles of length depending on alkalinity of the water.

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.

DOT Hazard Class
Environmentally Hazardous Substances,
Solid, n.o.s., (Cupric Sulfate), UN 3077

CHEMIGATION

SUPPLEMENTAL LABELING COPPER SULFATE PENTAHYDRATE
EPA REGISTRATION NO. 1278-8
EPA ESTABLISHMENT NO. 1278-TX-1

SUPPLEMENTAL LABELING COPPER SULFATE PENTAHYDRATE
EPA REGISTRATION NO. 1278-5
EPA ESTABLISMENT NO. 1278-TX-1

Special Use Direction for Chemigation Applications.

Apply this product only through sprinkler systems including center pivot, lateral move, end tow, side (wheel) roll, solid set, or hand move. Do not apply this product through any other type of irrigation system. Do not use this product in sprinkler systems connected directly to public water systems. Crop injury, lack of effectiveness, or illegal postloide residues in the crop can result from nonuniform 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 green house 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.

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection 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 motoring pump, such as positive displacement injections pump (e.g., diaphragm pump) defectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. Do not apply when wind speed favors drift beyond the area intended for treatment.

To mix this product for application, add it to the supply tank containing sufficient water to maintain a pumpable fluid for your equipment with continuous agitation. Continued agitation is required in the pesticide supply tank when this product is present until it is completely empty.

If other known compatible pesticides or products are tank-mixed, add this product and other wettable powders first to the water, followed by flowables, liquids, and last emulsifiable products. In lateral move, end low, side (wheel) roll, solid set, or hand move inject products in the last 15 to 30 minutes of each set allowing sufficient time for all of the required pesticide to be applied by all sprinkler heads. In continuous moving system, inject this product-water mixture continuously applying the labeled rate per acre for that crop. In continuous moving systems, best disease control results when water applications are low, but do not exceed one inch per acre.

phelps dodge Refining Corporation
EL PASO, TEXAS 79998