

PM 22 1812-304

File
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United States Environmental Protection Agency
Washington, D.C. 20460

OCT 12 1993

Office of
Prevention, Pesticides and
Toxic Substances

James Yowell
GRIFFIN CORPORATION
BOX 1847
VALDOSTA GA 31603

Subject: Label Amendment Submission of 06/18/93
in Compliance with WPS Labeling Requirements
EPA Reg No. 1812-304
KOCIDE COPPER SULFATE PENTAHYDRATE CRYSTALS

Dear Registrant:

The labeling cited above and submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is accepted subject to the comments listed below.

Based on your certification, the Agency has accepted only those changes to your labeling which are necessary to comply with PR Notices 93-7 and 93-11, which reflect the WPS labeling requirements of 40 CFR part 156, subpart K. Any other labeling changes submitted in connection with this amendment application and not directly related to compliance with PR Notice 93-7 or 93-11 have neither been reviewed nor accepted by the Agency. If you wish to make any such changes, you must submit a separate amendment application proposing them. If your product registration is currently suspended, acceptance of this labeling amendment does not affect the suspension in any way.

A copy of your proposed labeling stamped "Accepted with comments" is attached. Make any required changes described in the attached and send three copies of final labeling as soon as it is available to:

Document Processing Desk (FIN-LABEL)

2 3 11
Office of Pesticide Programs (H-7504C)
U.S. Environmental Protection Agency
401 M Street SW
Washington, DC 20460-0001

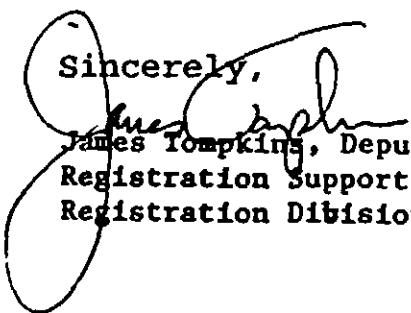
Hand or courier deliveries of final labels may be made to:

Document Processing Desk (FIN-LABEL)
Room 266A Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202

Please correct the typographical errors circled on the draft before printing final labeling.

In your final labeling the "Agricultural Use Requirements" text must be contained in a clearly separate box. This box may be set apart by a line, by another graphical device, by a different color background, or in any other way that clearly distinguishes it from surrounding text.

Sincerely,


James Tompkins, Deputy Chief
Registration Support Branch
Registration Division (7505W)

GRIFFIN CORPORATION
KOCIDE COPPER SULFATE PENTAHYDRATE CRYSTALS
1812-304 06/18/93
Original Submission

You omitted the Personal Protective Equipment heading.
User Safety Recommendations must either be placed in a box or printed on the label in a contrasting color from surrounding text.
The Agricultural Use Requirements section must either be placed in a box or printed on the label in a contrasting color from the surrounding text.

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ACCEPTED
with COMMENTS
in EPA Letter Dated

4 8 11

OCT 12 1993

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

1812-304

**KOCIDE COPPER SULFATE
PENTAHYDRATE CRYSTALS**

For control of algae and potamogeton pond weeds
in impounded waters, lakes, ponds, reservoirs,
and irrigation systems.

ACTIVE INGREDIENT

COPPER SULFATE PENTAHYDRATE 99%

INERT INGREDIENTS
. 1%

(METALLIC COPPER EQUIVALENT
100%

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,
and someone to explain it to you in detail.)~~

STATEMENT OF PRACTICAL TREATMENT

IF ON SKIN: Wash with plenty of soap and water. Get medical attention.

IF INHALED: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention.

IF IN EYES: Flush with plenty of water. Call a physician.

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.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate use of gastric lavage.

~~**PRECAUCION AL USUARIO:** Si usted no lee ingles, no use este producto hasta que le etiqueta haya sido explicado ampliamente.~~

SEE ADDITIONAL PRECAUTIONARY STATEMENTS

50 LBS. NET

Griffin Corporation
Valdosta, GA 31601

EPA Reg. No. 1812-304
EPA Est. No. 45450-AZ-1

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

~~Corrosive. Causes irreversible eye damage. Causes severe skin irritation. Harmful if absorbed through the skin or inhaled. May cause skin sensitization reactions in certain individuals. Avoid contact with the skin, eyes, or clothing. Avoid breathing dust. Protective clothing, including goggles, should be worn. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.~~

~~Wear long sleeves and pants, long gloves, and shoes. Wear eye protection. Avoid contact with eyes. Wash hands after use. Do not eat, drink, or smoke while using this product.~~

~~Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. 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
Users should:

~~Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.~~

~~Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.~~

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and aquatic organisms.

STORAGE AND DISPOSAL

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

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide 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: Completely empty bag into application equipment. Then 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.

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ENDANGERED SPECIES RESTRICTIONS

It is a violation of Federal law to use any pesticide in a manner that results in the death of an endangered species or adverse modification of their habitat.

The use of this product may pose a hazard to certain Federally designated endangered species known to occur in specific areas within the following counties:

STATE	SPECIES	BULLETIN NO.	COUNTY
California	Solano Grass	EPA/ES-85-13	Solano
Tennessee	Slackwater Darter	EPA/ES-85-04	Lawrence, Wayne, Hancock
	Freshwater Mussels	EPA/ES-85-07	Clairborne, Hawkins, Sullivan
Alabama	Slackwater Darter	EPA/ES-85-05	Lauderdale, Limestone, Madison
Virginia	Freshwater Mussels	EPA/ES-85-06	Grayson, Smyth, Scott, Lee, Washington

Before using this product in the above counties you must obtain the EPA Bulletin specific to your area. This bulletin identifies areas within these counties where the use of this pesticide is prohibited, unless specified otherwise. The EPA Bulletin is available from either your County Agricultural Extension Agent, the Endangered Species Specialist in your State Wildlife Agency Headquarters, or the appropriate Regional Office of the U.S. Fish and Wildlife Service. THIS BULLETIN MUST BE REVIEWED PRIOR TO PESTICIDE USES.

This pesticide is toxic to fish and aquatic organisms. Direct application of copper sulfate pentahydrate 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 in order to avoid depletion of oxygen from decaying vegetation. Allow 1 to 2 weeks between treatment 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 by cleaning or disposal of wastes.

Consult your State Fish and Game Agency before applying this product to public waters. Permits may be required before treating such waters.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

[REDACTED]

KOCIDE COPPER SULFATE PENTAHYDRATE

USE THIS PRODUCT ONLY TO CONTROL ALGAE IN WATER SYSTEMS... [REDACTED]

Do not enter or allow anyone to enter... [REDACTED]

Do not apply this product through any type of irrigation system. [REDACTED]

Do not apply this product through any type of irrigation system.

Use KOCIDE COPPER SULFATE PENTAHYDRATE as noted below. When using KOCIDE COPPER SULFATE PENTAHYDRATE 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 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 is more difficult to control with copper sulfate when water temperatures are low. The dose rates recommended for KOCIDE COPPER SULFATE PENTAHYDRATE are based on water temperatures of 60°F or above. Larger quantities of copper sulfate will also be 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

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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. 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 be either painted, enameled, or copper-lined. The use of a galvanized container causes a chemical reaction to take place by which the copper displaces the galvanized coating of the container. It is usually best to treat algae on a sunny day when the heavy mats of filamentary algae are most likely to be floating on the surface where it 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 is killed.

**CALCULATIONS FOR THE AMOUNT OF WATER IMPOUNDED
AND FOR THE AMOUNT OF COPPER SULFATE TO BE USED**

Calculate water volume as follows:

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

CALCULATIONS OF ACTIVE INGREDIENT TO BE ADDED: To calculate the amount of copper sulfate needed to achieve the recommended concentration, multiply the weight of water by the recommended concentration of copper sulfate. Since recommended concentrations are normally given in parts per million (ppm), it will first be necessary to convert the value in parts per million to a decimal equivalent. For example, 2 ppm is the same as 0.000002 when used in this calculation. Therefore, to calculate the amount of copper sulfate to treat 1 acre-foot of water with 2ppm copper sulfate, the calculation would be as follows:

$$0.000002 \times 2,720,000 = 5.44 \text{ lbs. Copper Sulfate}$$

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.

SPECIFIC INSTRUCTIONS

TO CONTROL ALGAE AND THE POTOMOGETON POND WEEDS, LEAFY AND SAGO, IN IRRIGATION SYSTEMS:

Once the amount of copper sulfate required for treating ditches or streams has been calculated, use a continuous application method, selecting proper equipment to supply copper sulfate granular crystals as follows:

FOR ALGAE CONTROL - Begin continuous addition of granular copper sulfate when water is first turned into the system and continue through the irrigation system, applying 0.1 to 0.2 pounds per cubic foot per second per hour per 12 hour period.

FOR LEAFY AND SAGO POND WEED CONTROL - Use the same continuous feeder, applying 0.25 to 0.5 pounds copper sulfate pentahydrate per cubic foot per second per hour per 12 hour period. **NOTE:** For best control of leafy and sago pond weed, it is essential to begin copper sulfate additions when water is first turned into the system or ditch to be treated and to continue throughout the irrigation system. Copper sulfate becomes less effective as the alkalinity increases. Its effectiveness is significantly reduced when the bicarbonate alkalinity exceeds 150 ppm. Should copper sulfate fail to control pond weeds satisfactorily, it may be necessary to treat the ditch with either a suitable approved herbicide or use a mechanical means to remove excess growth. In either case, resume copper sulfate addition as soon as possible.

TO CONTROL ALGAE IN IRRIGATION CONVEYANCE SYSTEMS USING THE SLUG APPLICATION METHOD: Make an addition (dump) of copper sulfate into the irrigation ditch or lateral at 0.25 to 2.0 lbs. per cubic foot per second of water per treatment. Repeat on approximate two week intervals as required. Depending on water hardness, alkalinity and algae concentration, a dump is usually required every 5 to 30 miles. Effectiveness of copper sulfate decreases as the bicarbonate alkalinity increases and is significantly reduced when the alkalinity exceeds approximately 150 ppm as CaCO_3 .

TO CONTROL ALGAE IN IMPOUNDED WATERS, LAKES, PONDS AND RESERVOIRS: There are several methods by which to apply copper sulfate to impounded water. Probably the most satisfactory and simplest method is to dissolve the copper sulfate crystals in water and to spray this water over the body of water. A small pump mounted in the boat can easily be used for this purpose. Fine crystals may be broadcast directly on the water surface from a properly equipped boat. A specially equipped air blower can be used to discharge fine crystals at a specific rate over the surface of the water. When using this method, the direction of the wind is an important factor. Do not use this method unless completely familiar with this type of application. Where the situation permits, copper sulfate may be applied under the water by dragging burlap bags containing copper sulfate. The crystals are placed in burlap bags and dragged through the water by means of a boat. Begin treatment along the shoreline and proceed outward until one third to one half of the total area has been treated. Care should be taken that the

course of the boat is such as to cause even distribution of the chemical. In large lakes, it is customary for the boat to travel in parallel lines about 20 to 100 feet apart. Continue dragging the burlap bags over the treated area until the minimum dosage is achieved and all crystals have been dissolved. Large or medium size crystals that dissolve slowly should be used with this method. (Refer to table below for recommended application rates).

TO CONTROL ALGAE IN RICE FIELDS: Application should be made when algae has formed on the soil surface in the flooded field. Applications are most effective when made prior to the algae's leaving the soil surface and rising to the water surface. Apply 10- 15 pounds KOCIDE COPPER SULFATE PENTAHYDRATE to the water surface as either crystals or dissolve in water and make a surface spray. Apply higher rate in deeper water (6 inches or greater).

TO CONTROL TADPOLE SHRIMP IN RICE FIELDS: Application should be made to the flooded fields any time the pest appears from planting time until the seedlings are well rooted and have emerged through the water. Apply 5-10 pounds KOCIDE COPPER SULFATE PENTAHYDRATE per acre. The use rate per acre should be determined by the water depth and flow. Use the lower rate at minimum flow and water depth and the higher rate when water depth and flow are maximum.

COPPER SULFATE REQUIRED FOR TREATMENT OF DIFFERENT GENERA OF ALGAE

The genera of algae listed below are commonly found in water of the United States. Use the lower recommended rate in soft waters (less than 50 ppm methyl orange alkalinity) and the higher concentration in hard water (above 50 ppm alkalinity). Always consult State Fish and Game Agency before applying this product to municipal waters.

ORGANISM	1/4 TO 1/2 PPM*	1/2 TO 1 PPM*	1 TO 1 1/2 PPM*	1 1/2 TO 2 PPM*
Cyanophyceae (Blue-green)	Anabaena Anacystis Aphanizomenon Gloeotrichia Gomphosphaeria Polycystis Rivularia	Cylindrospermum Oscillatoris Plectonema	Nostoc Phormidium	Calothrix Symploca
Chlorophyceae (Green)	Closterium Hydrodictyon Spirogyra Ulothrix	Botryococcus Cladophora Coelastrum Draparnaldia Enteromorpha Gloeocystis Microspora Tribonema Zygnema	Chlorella Crucigenia Desmidium Golenkinia Oocystis Palmella Pithophora Staurastrum Tetraedron	Ankistrodesmus Chara Nitella Scenendesmus
Diatomaceae (Diatoms)	Asterionella Fragilaria Melosira Navicula	Gomphonema Nitzschia Stephanodiscus Synedra Tabellaria	Achanthes Cymbella Neidium	

Protozoa
(Flagellates)

Dinobryon
Synura
Uroglena
Volvox

Ceratium
Cryptomonas
Euglena
Glenodinium
Mallomonas

Chlamydomonas
Hawmatococcus
Peridinium

Eudorina
Pandorina

- * 1 /4 to 1/2 ppm = .67 - 1.3 lbs. / acre ft.
- * 1 /2 to 1 ppm = 1.3 - 2.6 lbs. / acre ft.
- * 1 to 1 1/2 ppm = 2.6 - 3.9 lbs./ acre ft.
- * 1 1/2 to 2 ppm = 3.9 - 5.32 lbs./ acre ft.

WARRANTY STATEMENT

GRIFFIN 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 GRIFFIN. In no case shall GRIFFIN be liable for consequential, special or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the Buyer. GRIFFIN MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.