

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

HA 22 1812-307 155 1/9

JUN 12 1991

Mr. W. Guy
Griffin Corporation
P.O. Box 1847
Valdosta, GA 31603-1847

Dear Mr. Guy:

Subject: K-TEA
EPA Reg. No. 1812-307
Re: Label Amendment
Your submission dated May 8, 1991

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable subject to the comment listed below. Please submit five of your final printed labeling incorporating these changes before releasing your product for shipment. A stamped copy is enclosed for your records.

- 1. Please add the heading "Directions for Use" to your label, as well as a "Misuse" statement.

Sincerely,

SP

Cynthia Giles-Parker
Product Manager (22)
Fungicide-Herbicide Branch
Registration Division (H7505C)

enclosure

CONCURRENCES

SYMBOL	H7505C						
SURNAME	COLE						
DATE	6/4/91						

K-TEA™

Algaecide

Active Ingredient

*Copper as elemental 8%

Inert Ingredients 92%

Total 100%

*From copper-triethanclamine complex

One gallon contains 0.8 pounds of metallic copper

Use in Slow Moving or Quiescent Bodies of Water Including: Golf Course, Ornamental, Fish, Irrigation and Fire Ponds; Fresh Water Lakes and Fish Hatcheries; Potable Water Reservoirs and Associated Waters (Rivers, Streams, Bays and Coves); and Crop and Noncrop Irrigation Conveyance Systems (Canals, Laterals, and Ditches).

CAUTION

KEEP OUT OF THE REACH OF CHILDREN

SEE PRECAUTIONARY STATEMENTS AND

STATEMENT OF PRACTICAL TREATMENT ON BACK PANEL

Areas treated with K-TEA may be used for fishing, swimming, drinking, watering livestock and irrigating crops, turf, putting greens, fairways and ornamental plants immediately after treatment.

Net Contents: 2 1/2 Gallons

GRIFFIN CORPORATION
Valdosta, GA 31601

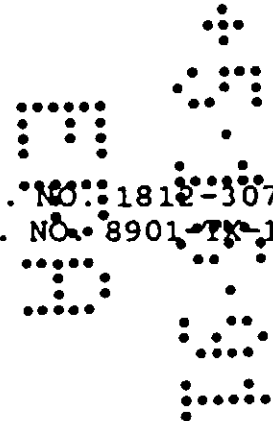
ACCEPTED
with COMMENTS
EPA Letter Dated:

JUN 12 1991

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

1813-307

EPA REG. NO. 1813-307
EPA EST. NO. 8901-TX-1



HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed. Avoid contact with skin and eyes. Wash thoroughly with soap and water after handling. Do not apply this product in a manner as to directly expose workers or other persons.

STATEMENT OF PRACTICAL TREATMENT

IF SWALLOWED: Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

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

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. Get medical attention if irritation persists.

ENVIRONMENTAL HAZARDS

This product may be toxic to fish. Some species of fish may be killed at application rates on this label - trout and channel catfish are especially sensitive. Immature fish are more susceptible to injury than mature. Generally, fish toxicity is reduced as water hardness increases above a level of 1000 ppm. Consult State Fish and Game Agency or other responsible agency before applying this product to public waters.

STORAGE AND DISPOSAL

Store in a cool, dry place

PESTICIDE DISPOSAL: Do not contaminate water, food or feed by storage and disposal. Wastes resulting from the use of this product may be disposed of on site or an approved waste disposal facility.

CONTAINER DISPOSAL: Triple rinse (or equivalent). They offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

GENERAL INFORMATION

41

K-TEA algaecide provides effective control of various filamentous, planktonic and branched algae which can occur in slow moving or quiescent bodies of water including: golf course, ornamental, fish, irrigation and fire pond; fresh water lakes and fish hatcheries,; potable water reservoirs and associated waters (rivers, streams, bays and coves); and crop and noncrop irrigation conveyance systems (canals, laterals and ditches). K-TEA is most effective when applied at the first signs of algal bloom. K-TEA treated water may be used to irrigate crops, turf, fairways, putting greens and ornamental plants immediately after treatment. K-TEA may be applied by aircraft, ground sprayer or spray boat as a direct surface spray or direct subsurface application through weighted hoses, invert emulsions or polymer application as appropriate.

In areas heavily infested with algae or aquatic weeds or if water temperature is high, treatment can result in oxygen loss from decomposition of dead vegetation. This loss can cause fish suffocation. To minimize this hazard, treat 1/3 to 1/2 of the water area in a single operation. Add only enough K-TEA for the actual area being treated. Wait 10-14 days before treating the remaining area. Begin treatment along the shore and proceed outward in bands to allow fish to move into untreated areas.

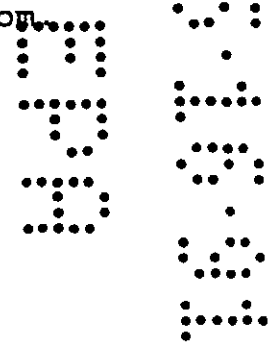
K-TEA may be used in combination with Komeen[®] or Diquat[®] for more effective control of Hydrilla verticillata and other vascular weeds. K-TEA may also be combined with other herbicides to improve weed control by killing algae which cover aquatic weeds and interfere with herbicide uptake.

CAUTION: Undiluted K-TEA or concentrations above 1.0 ppm Cu++ may be injurious to crops, grass, ornamentals and other foliage. Do not apply in such a way that the concentrated product comes in contact with crops, ornamentals, grass or desirable plants. Apply only as specified on the label.

ALGAE CONTROL

Free floating algae (planktonic), such as Anabaena, Aphanizomenon, Chlorella, Dictyosphaerium, Euglena, and Microcystis are controlled using 0.2 to 0.5 ppm metallic copper depending upon severity of growth.

Filamentous algae (mat-forming) such as, Cladophora, Hydrodictyon, Oedogonium and Spirogyra require 0.5 to 1.0 ppm metallic copper depending on growth and intensity. Chara and Phormidium are difficult to control unless treatment at 0.5 to 1.0 ppm metallic copper is initiated at the first signs of algal bloom.



FOR BEST RESULTS WITH K-TEA: Apply K-TEA early in the day when conditions are calm. Water temperature should be at least 60°F. Treat when algae first appears. Even distribution of K-TEA in the water will improve algae control; therefore, apply in a manner that distributes K-TEA throughout the treated area.

NOTE: Consult an Agricultural Extension Agent, State Fish and Game Agency or other expert to verify that your problem is algae and to correctly identify the type of algae present.

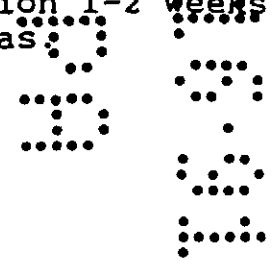
COPPER LEVELS REQUIRED FOR CONTROL OF DIFFERENT GENERA OF ALGAE

<u>ORGANISM</u>	<u>0.2-0.5 PPM COPPER</u>		<u>0.5-1.0 PPM COPPER</u>	
Cyanophyceae (Blue-green)	Anabaena Aphanizomenon Cylindrospermum Gloeotrichia Gomphosphaeria	Microcystis Oscillatoria Plectonema Polycystis	Calothrix Nostoc	Phormidium Symploca
Chlorophyceae (Green)	Botryococcus Closterium Coelastrum Draparnaldia Enteromorpha Gloecystis	Hydrodictyon Microspora Spirogyra Tribonema Ulothrix Zygnema	Ankistrodesmus Chara Chlorella Cladophora Crucigenia Desmidiium Golenkinia	Nitella Oocystis Palmella Pithophora Scenedesmus Staurostrum Tetraedron
Diatomaceae (Diatoms)	Asterionella Fragilaria Gomphonema Melosira Navicula	Nitzschia Stephanodiscus Synedra Tabellaria	Achnanthes Cymbella Neidium	
Protozoa (Flagellates)	Ceratium Cryptomonas Dinobryon Euglena Glenodinium	Mallomonas Synura Uroglena Volvox	Chlamydomonas Eudorina Hawmatococcus	Pandorina Peridinium

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

DIRECT SURFACE SPRAY

Begin treatment at the first signs of algae. If desired, dilute one volume of K-TEA with 10-20 volumes of water before application. Spray diluted mixture from shore or boat evenly across surface of water at rates to achieve a particular copper concentration, according to the label below. To ensure best results, remove large mats of floating algae manually before treatment. A second application 1-2 weeks after the first may be necessary for heavily infested areas.



6/7

For most effective algae control, maintain the desired copper concentration for a minimum of three hours. Rates given below represent concentrations for quiescent or slow moving water. If water flow results in significant dilution of the treated water within three hours of application it may be necessary to meter K-TEA into the water (Refer to instructions for Drip System Application below).

APPLICATION RATES FOR QUIESCENT OR SLOW MOVING WATER

Depth of Water (Feet)	Gallons of K-TEA per acre to achieve the desired copper content		
	0.2 ppm Cu	0.5 ppm Cu	1.0 ppm Cu
1	0.7	1.7	3.4
2	1.4	3.4	6.8
3	2.0	5.1	10.2

SUMMER APPLICATION (stratified lakes) - When the average depth exceeds 4 feet and the lake is known to be stratified, it is necessary to treat only the upper 6 feet of water.

SPRING/FALL APPLICATION (unstratified lakes) - Treat the entire body of water, remembering to treat 1/3 to 1/2 of the surface area at a time to reduce the possibility of adverse effects on the fish population.

DIRECT SUBSURFACE APPLICATION

In deeper water, make a subsurface application of K-TEA at recommended rates through weighted trailing hoses where the greatest concentration of algae is present. Do not drag hoses on the bottom.

POLYMER APPLICATION

A polymer may be added to K-TEA or a K-TEA/Water premix to improve sinking, deposition and retention of the spray. Consult the manufacturer's recommendations regarding the use of a polymer for improved algae control.

INVERT EMULSIONS

K-TEA may be subsurface applied alone or in combination with other herbicides, including Diquat (see below), by injecting the products in an invert emulsion carrier. Invert applications should be made through weighted hoses drug below the surface of the water. Refer to all cautions and precautions of products used with K-TEA.

AIRCRAFT APPLICATION

Apply the recommended rate of K-TEA in 20 gallons of total spray solution per surface acre. Add the recommended rates of a drift control or sinking agent to the spray solution. Maintain constant agitation during addition of the polymer and continue through application. When treating moving water, apply the spray solution counter to the flow of water.

DRIP SYSTEM APPLICATION

FOR USE IN IRRIGATION CONVEYANCE SYSTEMS AND OTHER MOVING WATER

For best results, application should be made in anticipation of algae that may interfere with normal flow or delivery of water (obstruction of lateral headgates, screens, pumps, pumping systems and siphon tubes). Delayed treatment may result in matting or compaction of algae mats. Since low flow rates may result in poor chemical distribution and unsatisfactory algae control, it may be necessary to increase water flow rates during treatment.

Determine the water flow rate prior to treatment of the water system. If available, use weirs, orifices or similar devices which give accurate water flow measurements. If these devices are not available, volume of flow may be estimated by the following formula:

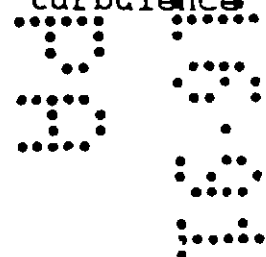
$$\text{Average Width (ft)} \times \text{Average Depth (ft)} \times \text{Velocity (ft/second)} \times 0.9 = \text{Cubic Feet per Second (C.F.S.)}$$

To determine velocity measure the time it takes a floating object in the middle of the canal to travel a given distance. Divide the distance (feet) by the time (seconds) for velocity (feet/second). Repeat this procedure at least three times and then calculate the average velocity. Use the average velocity (feet/second) in the formula above to determine the flow rate (C.F.S.).

Once the water flow rate (C.F.S. or Gallons per Minute) has been calculated, find the corresponding drip rate for K-TEA on the chart below.

WATER FLOW RATE		K-TEA DRIP RATE		
C.F.S.	GAL/MIN	QTS/HR	ML/MIN	FL OZ/MIN
1	500	1.25	20	0.7
2	1000	2.50	40	1.3
3	1500	3.75	60	2.0
4	2000	5.00	80	2.3
5	2500	6.25	100	3.3

Determining Amount of K-TEA: To calculate the amount of K-TEA needed to maintain the drip rate for 3 hours, calculate as follows: QTS/HR x 3; or ML/MIN x 180; or FL OZ/MIN x 180. Applying the dosages given above will maintain 1 ppm Cu for three hours. Thorough mixing is necessary to uniformly disperse K-TEA in the water; therefore, apply K-TEA in the channel at weirs or other structures which create turbulence or at several injection points across the flow.



Calibrating For Drip Application (Gravity Feed): Pour the amount of K-TEA needed to treat for three hours (calculated above) into a drum or tank equipped with a brass needle valve and designed to maintain a constant drip rate. Using a stop watch, measure the volume of K-TEA in a graduated container (measuring cup, graduated cylinder, etc.). Adjust the needle valve so that K-TEA is dripping at the rate given in the table above. NOTE: If the flow rate changes during the 3 hour treatment period, it may be necessary to readjust the needle valve. If power is available, a small pump can be used to meter K-TEA into the water more accurately.

Distance of algae control from the application point will vary with severity of infestation. Repeat application at a point 3 hours downstream from the previous treatment station. Repeat as necessary to treat entire infested area. It may be necessary to periodically repeat treatments to maintain seasonal control.

HYDRILLA VERTICILLATA CONTROL

Tank-mix K-TEA with Komeen or Diquat to kill algae which cover Hydrilla verticillata and interfere with herbicide uptake. Observe all cautions and limitations on the Komeen and Diquat labels.

K-TEA + KOMREEN TANK-MIX

Apply 1.7-3.4 gallons of K-TEA per acre-foot of water plus 3.34 gallons of Komeen per acre-foot of water when water temperature is above 60°F. Use the low rate of K-TEA for light algae infestations or easy-to-control species. Use the high rate of K-TEA for heavy algae infestations or difficult-to-control species. Apply using an application method which provides uniform coverage of the treated area and delivers the spray solution to the plant surface.

K-TEA + DIQUAT TANK-MIX

Apply 4 gallons of K-TEA plus 2 gallons of Diquat per surface acre in bright sunlight when water is above 60°F.

Surface Application: Apply by handgun, spray boat, aircraft or other method of application which provides uniform coverage of the treated area. Combine K-TEA and Diquat with water in a mix tank or use an injection system to make approximately 100 gallons for each surface acre treated. When using a spray boat, apply the mixture through hoses which are dragged as close to the bottom as possible. For best results, do not drag hoses on the bottom. Complete effect of the treatment will be observed in 8-12 weeks. In heavily infested areas, a second application after 12 weeks may be necessary.

Subsurface Application: Use a boom with trailing hoses fitted with Delavan or Spraying System 80-degree nozzle tips with 06 orifices, or a similar nozzle. Hoses 18-24 inches long will apply the material 3-5 inches below the water surface. Apply from the bow or stern of the boat in strips no more than 20 feet apart.

Bottom Placement: In firm, sandy-bottomed lakes where water is quiescent or slowly moving and Hydrilla has reached the surface, apply in a water carrier injecting the diluted K-TEA plus Diquat mixture 1-2 feet above the bottom using weighted trailing hoses. If suspended silt, muddy water, or where water is slowly moving through submersed growth, apply in an invert emulsion carrier injecting the K-TEA plus Diquat mixture in an invert emulsion carrier 1-2 feet above the bottom using weighted trailing hoses.

Trout and other species of fish may be killed at application rates recommended on this label. Fish toxicity generally decreases when the hardness of the water increases. Consult your State Fish and Game Agency for specific information before applying this product to public waters.

IRRIGATION WITH TREATED WATER

When applied according to label instructions, water treated with K-TEA may be used for irrigation immediately after treatment.

NOTICE OF WARRANTY

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. 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.

Diquat® is a registered trademark of Valent USA Corporation

K-TEA™ is a trademark of Griffin Corporation

KOMEEN® is a registered trademark of Griffin Corporation

