03/15/2004

55146-42

5747830 VIA



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

MAR 1 5 2004

Theodore D. Head Product Registration Manager Nufarm Agriculture USA 1333 Burr Ridge Parkway, Suite 125A Burr Ridge, IL 60527-0866

Subject: ALGAE-RHAP® CU-7 EPA Reg. No. 55146-42 Amendment dated July 23, 2003

Dear Mr. Head:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act as amended is acceptable provided the following changes are made:

- 1. In the List of Ingredients section, change "contains 0.74 lbs...." to "contains 0.73 lbs...." Change "Copper as elemental" to "Copper as metallic"
- 2. In the section ENVIRONMENTAL HAZARDS,
 - a. Add the following text to the end of the existing text: "Do not treat more than one-half of lake or pond at one time to avoid depletion of oxygen levels due to decaying vegetation."
 - b. Add the follow paragraphs to the end of the section:

"<u>Potable Water</u>: Do not allow water containing in excess of 1 ppm copper to flow into any water to be used as potable water. <u>Terrestrial Plants</u>: Do not apply this product in its concentrated form directly to any crop plants, grass, or ornamental plants as injury may result."

- 3. In the General Information section:
 - a. In the fourth paragraph, delete the comma between "algae" and "which" in the third line.
- 4. On page 5, all of the dosage rates are incorrect. The following summarizes the correct rates:

EPA Reg. No. 55146-42 ALGAE-RHAP® CU-7 Page 2 of 3

Gallons per acre of product containing 0.73 lb Cu/gallon

depth - inches		ppm Cu	
-	0.2	0.5	1
3	0.19	0.47	0,93
4	0.25	0.62	1.24
5	0.31	0.78	1.55
6	0.37	0.93	1.86
7	0.43	1.09	2.17
8	0.50	1.24	2.48
12	0.74	1.86	3.72
24	1.49	3.72	7.44
36	2.23	5.58	11.16
48	2.98	7.44	14.88
72	4.46	11.16	22.32

Pints per acre of product containing 0.73 lb Cu/gallon

depth	- inches	0.2	ppm_Cu	-
		0.2	0.5	<u>.</u>
	3	1.49	3.72	7.44
•	4	1.98	4.96	9.92
	5	2.48	6.20	12.40
	6	2.98	7.44	14.88
	7	3.47	8.68	17.36
	8	3.97	9.92	19.84
	12	5.95	14.88	29.76
	24	11.90	29.76	59.52
	36	17.86	44.64	89.28
	48	23.81	59.52	119.04
	72	35.71	89.28	178.56

5. On page 6 in the section "Drip System Application":

a. In paragraph 3, line 2, change "(feed)" to "(feet)"

b. the application rates in the table are incorrect. The following summarizes the correct rates:

	WATER PRODUCT						
CFS	lb water/hr	gal/hr	gal/min	lb Cu/hr	qt/hr	ml/min	fl oz/min
1	224,640	26,968	449	0.22	1.23	19.41	0.68
2	449,280	53,935	899	0.45	2.46	38.83	1.36
3	673,920	80,903	1,348	0.67	3.69	58.24	2.04
4	898,560	107,870	1,798	0.90	4.92	77.66	2.72
5	1,123,200	134,838	2,247	1.12	6.15	97.07	3.40

EPA Reg. No. 55146-42 ALGAE-RHAP® CU-7 Page 3 of 3

- 6. On page 7 under Hydrilla Verticillata Control, in the first paragraph change "to kill algae, which...." to "to kill algae which...."
- 7. On page 7 under ALGAE-RHAP CU-7 + DIQUAT TANK-MIX, change "Apply 4 gallons..." to "Apply 3.72 gallons...."
- 8. On page 8 under Bottom Placement, in lines 3 and 6 change "feed" to "feet"

One copy of the label stamped "Accepted with comments" is enclosed for your records. Please submit one copy of the final printed label that incorporates the required changes before the product is released for shipment.

If you have any questions, please contact Robert Westin by phone at (703) 305-5721 or via email at westin.robert@epa.gov.

Sincerely,

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

Enclosure

with COMMENTS In EPA Letter Dated:	4/12
MAR 5 2004	
Under the Desterni Increasioide, Russioni and Antonio Antonio Russioni and Antonio Antonio	
	55146-

45

「二日」「と言

ALGAE-RHAP[®] CU-7

LIQUID COPPER ALGAECIDE

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).

Areas treated with ALGAE-RAHP CU-7 may be used for fishing, swimming, drinking, watering livestock and irrigating crops, turf, putting greens, fairways and ornamental plants immediately after treatment.

ACTIVE INGREDIENTS

*Copper as elemental	7.0%
Inert Ingredients	<u>93.0%</u>
Total	100.0%

*From copper-triethanolamine complex.

ALGAE-RHAP CU-7 contains 0.74 lbs. of elemental copper per gallon

KEEP OUT OF REACH OF CHILDREN CAUTION

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

First Aid

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 a poison control center or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. 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 treatment advice.

See side panel for additional Precautionary Statements.

Net Contents: 2 1/2 Gallons

Nufarm Americas Inc., - AGT Division Sugar Land, TX EPA REG. No. 55146-42 EPA Est. No.: 50522-TX-1

e a P

1

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS CAUTION

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

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 fish. Generally, fish toxicity is reduced as water hardness increases. 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. 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.

CONTAINER DISPOSAL: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incinerate, or, if allowed by State and local authorities, by burning. 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.

GENERAL INFORMATION

ALGAE-RHAP CU-7 algaecide provides effective control of various filamentous, planktonic and s branched algae which can occur 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). ALGAE-RHAP CU-7 is most effective when applied at the first signs of Algal bloom. ALGAE-RAHP CU-7 treated water may be used to irrigate crops, turf, fairways, putting greens and ornamental plants immediately after treatment. ALGAE-RHAP CU-7 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 ALGAE-RHAP CU-7 for the actual area being treated. Wait 10 to 14 days before treating the remaining area. Begin treatment along the shore and proceed outward in bands to allow fish to move into untreated area. Consult your state Fish and Game Agency before applying this product to public waters.

Treatment of algae can result in oxygen loss from decomposition of dead algae. This loss can cause fish suffocation. Therefore, to minimize this hazard, treat 1/3 to 1/2 of the water area in a single operation and 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 your State Fish and Game Agency before applying this product to public waters.

ALGAE-RHAP CU-7 may be used in combination with Diquat®, Komeen® or Sonar for more effective control of Hydrilla verticillata and other vascular weeds. ALGAE-RHAP CU-7 may also be combined with other herbicides to improve weed control by killing algae, which cover aquatic weeds and interfere with herbicide uptake.

NOTE: Undiluted ALGAE-RHAP CU-7 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, Chlorelia, Dictyosphaerium, Euglena, and Microcystis are controlled using 0.2 to 0.5 ppm metallic copper depending upon severity of growth.

1.5

Filamentous algae (mat-forming) such as, Cladophora, Hydrodictyon, Oedogonium and Spirogyrä 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 ALGAE-RHAP CU-7: Apply ALGAE-RHAP CU-7 early in the day when conditions are calm. Water temperature should be at least 60°F. Treat when algae first appear. Even distribution of ALGAE-RHAP CU-7 in the water will improve algae control; therefore, apply in a manner that distributes ALGAE-RHAP CU-7 throughout the treated area.



3

COPPER LEVELS REQUIRED FOR CONTROL OF DIFFERENT GENERA OF ALGAE

<u>ORGANISM</u>	<u>M</u> 0.2 - 0.5 PPM COPPER		0.5 - 1.0 PPM COPPER	
Cyanophycese (Blue-green)	Anabecna Aphanizomenon Cylindrospermum Gloeotrichin Gomphosphaeria	Microcystis Oscillatoria Plectonema Polycystis	Calothrix Nostoc	Phormidium Symploca
Chlorophycese (Green)	Botryococcus Closterium Coelastrum Draparnaldia Enteromorpha Gloecystis	Hydrodictyon Microspora Spirogyra Tribonema Ulothrix Zygnema	Ankistrodesmus Chara Chlorelia Cladophora Crucigenia Desmidium Golenkinis	Nitella Oocystis Palmlia Pithophora Scenedeamus Staurastrum Tetraedron
Distomacese (Diatoms)	Asterionella Fragilaria Gomphonema Melosira Navicula	Nitzchia Stephanodiscus Synedra Tabellaria	Achnanthes Cymbella Neidium	
- Protozoa (Flagellates)	Ceratium Cryptomonas Dinobryon Euglena Glenodinium	Mallomonas Synura Uroglena Volvox	Chlamydomones Curdorina Hawinstococcus	Pandorina Peridimina

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 Sate 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 ALGAE-RHAP CU-7 with 10 to 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 to 2 weeks after the first may be necessary for heavily infested areas. For the 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 even

0 0 2 7 2 7 0 0 necessary to meter ALGAE-RHAP CU-7 into the water. (Refer to instructions for Drip System Application below.)

APPLICATION RATES FOR QUIESCENT OR SLOW MOVING WATER

Amount of ALGAE-RHAP CU-7 per acre to achieve the desired copper content

Depth of Water	0.2 ppm Cu	0.5 ppm Cu	1.0 ppm Cu
	Pints of ALG	AE-RHAP Cu-7	
3 inches	1.5	3.75	7.5
4 inches	2.0	5.00	10.0
5 inches	2.5	6.25	12.5
6 inches	3.0	7.50	15.0
7 inches	3.5	8.75	17.5
8 inches	4.0	20.00	
	Gallons of ALC	AE-RHAP Cu-7	
1 foot	0.70	1.7	3.4
2 feet	1.50	3.4	6.8
3 feet	2.25	5.1	

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, c 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 ALGAE-RHAP CU-7 at recommended rates through weighted trailing hoses where the greatest concentration of algae is present. Do not drag thoses on the bottom.

POLYMER APPLICATION

A polymer may be added to ALGAE-RHAP CU-7 or an ALGAE-RHAP CU-7/Water premix to improve sinking, deposition and retention of the spray. Consult the manufacturers recommendations regarding the use of a polymer for improved algae control.

с_{ан}. 4

vee.

6.26**6**

ALGAE-RHAP CU-7 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 ALGAE-RHAP CU-7.

AIRCRAFT APPLICATION

Apply the recommended rate of ALGAE-RHAP CU-7 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 weils, 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:

Average Width (ft) X Average Depth (ft) X Velocity (ft/second) X 0.9 = 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 (feed) 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 (feed/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 ALGAE-RHAP CU-7 on the chart below:

Water	Flow Rate	ALGAE-RHAP CU-7 Drip		o Rate 🦯 🥐 🗠 🦿	
C.F.S.	Gallons/Minute	Quarts/Hour	Milliliters/Minute	Fluid Ounces/	Minute
1	500	1.25	20	0,7	6 6 6
2	1000	2.50	40	1.3	00 ● ' (● (*))
3	1500	3.75	60	° 2 .0	6000 8
4	2000	5.00	80	2.3	0
5	2500	6.25	100	3.3	
					0 1 1 0 2 2 4 6 6

20125 201

6

Determining Amount of ALGAE-RHAP CU-7: To calculate the amount of ALGAE-RHAP CU-7 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 ALGAE-RHAP CU-7 in the water; therefore, apply ALGAE-RHAP CU-7 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 ALGAE-RHAP CU-7 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 stopwatch, measure the volume of ALGAE-RHAP CU-7 in a graduated container (measuring cup, graduated cylinder, etc.). Adjust the needle valve so that ALGAE-RHAP CU-7 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 ALGAE-RHAP CU-7 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 ALGAE-RHAP CU-7 with Diquat to kill algae, which cover Hydrilla verticillate and interfere with herbicide uptake. Observe all cautions and limitations on the Diquat, Komeen and Sonar labels.

ALGAE-RHAP CU-7 + KOMEEN TANK-MIX

Apply 1.7 to 3.4 gallons of ALGAE-RHAP CU-7 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 ALGAE-RHAP CU-7 for light algae infestations or easy-to-control species. Use the high rate of ALGAE-RHAP CU-7 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.

ALGAE-RHAP CU-7 + DIQUAT TANK-MIX

Apply 4 gallons of ALGAE-RHAP CU-7 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 ALGAE-RHAP CU-7 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 to 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 to 24 inches long will apply the material 3 to 6 inches below the water surface. Apply from the bow or stern of the boat in strips no more than 20 feet apart.

Bottom Placement: Infirm, sandy-bottomed lakes where water is quiescent or slowly moving and Hydrilla has reached the surface, apply in a water carrier injecting the diluted ALGAE-RHAP CU-7 plus Diquat mixture 1 to 2 feed 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 ALGAE-RHAP CU-7 plus Diquat mixture in an invert emulsion carrier 1 to 2 feed above the bottom using weighted trailing hoses.

ALGAE-RHAP CU-7 + SONAR TANK MIX

Apply 2 to 5 gallons of ALGAE-RHAP CU-7 plus the recommended rate of Sonar A.S. per acre. Refer to the Sonar label for appropriate rate recommendations. This combination may be applied as a tank mix or metered with appropriate application equipment.

FISH NOTE

ALGAE-RHAP CU-7 may be toxic to Trout and other species of fish. Fish toxicity generally decreases when the hardness of the water increases.

SWIMMING POOLS

NOTE: Undiluted ALGAE-RHAP CU-7 or concentrations above 1.0 ppm Cu++ may be injurious to crops, grass, ornamentals and other foliage. Do no 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.

Dilute ALGAE-RHAP CU-7 with at least nine parts of water and sprinkle around edge of pool. Add additional amounts of ALGAE-RHAP CU-7 every two weeks according to directions on the chart.

NOTE: This product is algestatic rather than algaecidal to some Black Algae. Recommended rates will prevent formation of Black Algae. If Black Algae are already established triple the initial dose.

For best results begin pool maintenance with ALGAE-RHAP CU-7 when the pool is first filled with water. Add ALGAE-RHAP CU-7 according to the size of pool as given in the chart.



DILUTION CHART FOR SWIMMING POOLS

Swimming Pool	initia)	Treatment Once Every
Capacity	Treatment	Two Weeks
Gallons of Water	ALGAE-RHAP CU-7	ALGAE-RHAP CU-7
5,000	2 to 5 ounces	1 to 2.5 ounces
10,000	3.5 to 10 ounces	2 to 5 ounces
20,000	7 to 20 ounces	3.5 to 10 ounces
30,000	10.5 to 30 ounces	5.5 to 15 ounces
40,000	14 to 40 ounces	7 to 20 ounces
50,000	17.5 to 50 ounces	9 to 25 ounces

How to estimate gallon capacity of your pool: Measure length (L), Width (W), and average Depth (D) in feet. For Square or Rectangular Pools: $L \times W \times D \times 7.5$ = Gallons. For Circular or Elliptical Pools: $L \times W \times D \times 5.9$ = Gallons.

WARRANTY

Nufarm warrants that this product conforms to the chemical description on its label and is reasonably fit for the purposes set forth on the label when used according to directions under normal use conditions. THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING A WARRANTY OF FITNESS.

FOR A PARTICULAR PURPOSE. This warranty does not extend to the handling or use of this product contrary to label instructions or under abnormal conditions not reasonable foreseeable to seller and buyer assumes all risk of any such use.

Diquat® is a registered trademark of Valent USA Corporation

Komeen® is a registered trademark of Griffin Corporation

ដ្ឋាត ខេត្ត សមារនេះ ខេត្ត ខេត្ត ខេត្ត

1.01