



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

June 22, 2020

Jane Miller
Agent to Earth Science Laboratories, Inc.
Earth Science Laboratories, Inc.
c/o Biologic Regulatory Consulting, Inc.
10529 Heritage Bay Blvd.
Naples, FL 34120

Subject: Notification per PRN 98-10 – Added alternate brand name, added a referral statement, made minor revisions to Storage and Disposal section of label, along with other minor edits
Product Name: EARTHTEC
EPA Registration Number: 64962-1
Application Date: June 8, 2020
Decision Number: 563867

Dear Ms. Miller:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10.

The alternate brand name “EarthTec QZ-P” has been added to the product record.

The label submitted with the application has been stamped “Notification” and will be placed in our records.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA’s Office of Enforcement and Compliance.

If you have any questions, please contact Kathryn Meyer at 703-347-8277 or by email at meyer.kathryn@epa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Lindsay Roe".

Lindsay Roe,
Product Manager 22
Fungicide Branch
Registration Division (7505P)
Office of Pesticide Programs

NOTIFICATION

64962-1

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

6/22/2020

EARTHTEC

(ABN: EarthTec QZ; **EarthTec QZ-P**; CopCheck; Agritec; AgriTec 2)

Algaecide/Bactericide*

For Impounded Waters; Lakes; Ponds; Lagoons; Wastewater Lagoons; Reservoirs; Livestock Watering Systems; Potable Water Supplies^{***}; Sedimentation Basins; Ornamental Water Features or Fountains; and Equipment/Structures that deliver water directly to publicly owned water treatment facilities to include pipes, intake structures, gatehouses, screens, pumping stations, weirs, and penstocks.

Algaecide/Bactericide* For Irrigation Conveyance Systems, Irrigation Reservoirs, Irrigation Canals, Ditches, and Chemigation Systems

Algaecide/Tadpole Shrimp for Rice Fields

Algaecide/Bactericide* For Aquacultural Ponds

Algaecide/ Bactericide* For Residential Pools, Spas and Hot Tubs

Algaecide/Bactericide* [For Feedlot Run-Off Lagoons, Animal Waste or Confinement Pits and Organic Sludge Pits]

Molluscicide For Control of Quagga and Zebra Mussels in [Impounded Waters; Lakes; Ponds; Lagoons; Wastewater Lagoons; Reservoirs; Potable Water Supplies^{***}; Canals; Ditches; Aqueducts; and] [Equipment/Structures that deliver water directly to publicly owned water treatment facilities to include pipes, intake structures, gatehouses, screens, pumping stations, weirs, and penstocks.]

Bactericide* - Nonpublic Health Bacteria

Potable Water Supplies^{*} - Water Destined to Be Used as Drinking Water** (this water must receive additional and separate potable water treatment)

ACTIVE INGREDIENT

Copper Sulfate Pentahydrate ^{***}(CAS No. 7758-99-8)..... 19.8%

OTHER INGREDIENTS..... 80.2%

TOTAL..... 100.0%

^{***}Metallic Copper 5%

This product weighs 9.91 lb. per gallon (1.188 kg/L) and contains 0.493 lbs. elemental copper per gallon.

KEEP OUT OF REACH OF CHILDREN WARNING AVISO

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

[See [side] [back] [panel] [label booklet] for [complete] [additional] [First Aid.] [Precautionary Statements,] [Directions For Use,] and [Storage and Disposal.]

Manufactured by:
Earth Science Laboratories, Inc.
903 North 47th St., Suite 105
Rogers, AR 72756
Phone: 800-257-9283

EPA Registration No.: 64962-1
EPA Establishment No.: **64962-NE-001XXXXX-XX-XXX**
Batch No.:

Net Contents:
[Eight] [8] [Thirty-two] [32] [Sixty-four] [64] fluid ounces]
[One] [1] [Two and one-half] [2.5] [Thirty] [30] [Fifty-five] [55] [Two hundred seventy-five] [275] US [gallons]
[(Commercial Use Only)]

FIRST AID	
IF IN EYES:	Hold eye open and rinse slowly and gently with water for 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for 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 to an unconscious person.
IF ON SKIN OR CLOTHING:	Take off contaminated clothing. Rinse skin immediately with plenty of soap and water for 15 to 20 minutes. Call a poison control center or doctor for treatment.
Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact INFOTRAC 1-800-535-5053 for emergency medical treatment.	

PRECAUTIONARY STATEMENTS
Hazards to Humans and Domestic Animals
WARNING

Causes substantial but temporary eye injury. Harmful if swallowed. Harmful if absorbed through skin. Do not get in eyes or on clothing. Avoid contact with skin. Wear protective eyewear (goggles, face shield or safety glasses), long sleeved shirt, long pants, shoes, socks and chemical-resistant gloves made of any waterproof material. Some materials that are chemical-resistant to this product are polyvinyl chloride, polyethylene and viton. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT

Mixers, loaders, applicators and other handlers must wear the following:

- Long-sleeved shirt
- Long pants
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material (Chemical Resistance Category A)
- Protective eyewear

USER SAFETY REQUIREMENTS

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

USER SAFETY RECOMMENDATIONS
<ul style="list-style-type: none"> ● 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. As soon as possible, wash thoroughly and change into clean clothing. ● Wash the outside of gloves before removing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and aquatic invertebrates. 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 14 days between treatments. Begin treatment along the shore and proceed outward 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.

Certain water conditions including low pH (≤ 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. The application rates on this label are appropriate for water with alkalinity greater than 50 mg/L. Do not use these application rates for water with less than 50 ppm alkalinity (e.g., soft or acid waters) because trout and other species of fish may be killed under such conditions.

Consult your local state fish and game agency before applying this product to public waters. Permits may be required before treating such waters.

For applications in waters destined for use as drinking water, those waters must receive additional and separate potable water treatment. Do not apply more than 1.0 ppm as metallic copper in these waters (background + applied copper).

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 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 requirement specific to your state and tribe, consult the agency responsible for pesticide regulation. For use in residential pools, spas and hot tubs, do not apply this product in a way that will contact adults, children or pets.

AGRICULTURAL USE REQUIREMENTS APPLICABLE TO USE ON RICE FIELDS

Use this product only in accordance with its labeling and the Worker Protection Standard, 40 CFR part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, and nurseries, and mixers, loaders, applicators, and other 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 the label about personal protective equipment (PPE), restricted re-entry interval, and notification to workers. Do not enter or allow worker entry into treated areas during the restricted entry interval 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 soil or water. Wear coveralls, protective eyewear, chemical resistant gloves (i.e. gloves made of any waterproof material) and shoes plus socks.

USE INFORMATION

EarthTec is used to control algae and to suppress nonpublic health bacteria and bacteria that cause taste and odor problems in impounded waters; lakes; ponds; lagoons; wastewater lagoons; reservoirs; livestock watering systems; potable water supplies^{***}; sedimentation basins; ornamental water features or fountains; and equipment/structures that deliver water directly to publicly owned water treatment facilities to include pipes, intake structures, gatehouses, screens, pumping stations, weirs, and penstocks.

EarthTec is used to control algae and to suppress nonpublic health bacteria in irrigation conveyance systems, irrigation reservoirs, irrigation canals, ditches, and chemigation systems.

EarthTec is used to control algae and tadpole shrimp in rice fields.

EarthTec is used to control algae and to suppress nonpublic health bacteria and bacteria that cause odor problems in aquacultural ponds.

EarthTec is used to control algae and to suppress nonpublic health bacteria and bacteria that cause odor problems in residential pools, spas and hot tubs.

EarthTec is used to suppress nonpublic health bacteria and bacteria that cause odors (such as odors from hydrogen sulfide and ammonia gas) in feedlot run-off lagoons, animal waste or confinement pits and organic sludge pits.

EarthTec is used to control quagga and zebra mussels in impounded waters; lakes; ponds; lagoons; wastewater lagoons; reservoirs; potable water supplies^{***}; canals; ditches; aqueducts; and equipment/structures that deliver water directly to publicly owned water treatment facilities to include pipes, intake structures, gatehouses, screens, pumping stations, weirs, and penstocks.

EarthTec is an algaecide/bactericide*/molluscicide consisting of a soluble formulation of copper. EarthTec's proprietary formulation ensures that the active ingredient – metallic copper – is delivered in the form of the biologically available cupric ion, Cu⁺⁺.

Before treating bodies of water, consult NPDES permitting authorities. Do not exceed a free metallic copper concentration (background + applied copper) in treated water of 1.0 ppm (mg/L), equivalent to 16.7 mg/L of EarthTec.

This product has diffusional properties that move the ions through the water according to physical conditions. The product will stay soluble in the water until the ions are taken up by the algae/bacteria (non-public health) or affected by physical properties.

The product may be applied throughout the year. Apply when algae first appear. Apply based on the volume of water to be treated. The dose rates are variable and depend upon algae species, amount of algae present, water hardness, water temperature, turbidity and flows. Higher doses may be required for lower water temperatures, higher algae concentrations, and for hard waters. See Specific Directions for Use.

For control of planktonic algae, use a dose rate near the lower end of the labeled range. Dose near the higher end of the labeled range for rooted or stemmed species including Chara, Nitella, and filamentous algae. If there is uncertainty about the dosage, begin with the lower dosage and increase until algae control is achieved or until the maximum allowable level has been reached.

When treating flowing waters use a metering pump or similar means to apply a continuous dose so as to achieve a final dilution within the recommended range. See Specific Directions for Use.

Use in Control of Algae, Nonpublic Health Bacteria, and Bacteria That Cause Odor Problems

For algae control, apply in the late spring or early summer when algae first appear. The dosages are variable and depend upon algae species, water hardness, water temperature, amount of algae present, as well as whether water is clear, turbid, flowing or static. Preferably, the water should be clear with temperature above 60 degrees F (15.6 degrees C). Higher dosages are required at lower water temperatures, higher algae concentrations and for hard waters. See Specific Directions for Use. EarthTec is soluble and will quickly disperse.

EarthTec application for 3 acres or less may be poured directly into ponds, small lakes and reservoirs. EarthTec application for 3 acres or more should be applied at several points in the ponds, lakes or reservoirs. Larger bodies of water can be treated with EarthTec by dragging a feeder hose behind a boat across the body of water or dispensing via conventional spray equipment mounted to a boat, helicopter or airplane.

EarthTec will quickly diffuse throughout the water body in several hours; broad distribution of the product will speed dispersal and provide quicker control of algae. EarthTec may be applied to irrigation systems by a drip system or feeder pump according to the flow volume. Use higher dosages for Chara, Nitella and filamentous algae, and lower dosages for planktonic algae. If there is uncertainty about the dosage begin with the lower dosage and increase until control is achieved or until the maximum allowable level has been reached. See Specific Directions for Use.

Treatment of algae can result in oxygen loss from the decomposition of dead algae. This loss can cause fish suffocation. If the algae cover more than 1/3 of the total water area, treat in sections. Treat 1/2 of the water area in a single operation and wait for 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow fish to move into untreated areas. In regions where ponds freeze in winter, treatment should be done 6 to 8 weeks before expected freeze to prevent masses of decaying algae under an ice cover. Before treating bodies of

water, consult proper state authorities such as the fisheries commission or conservation department to obtain any necessary permits. For use in controlling algae and cyanobacteria at all aquatic application sites do not exceed a copper concentration in water of 1.0 ppm of metallic copper concentration (background + applied).

For example, if you wish to achieve 1.0 ppm of metallic copper, 1 gallon of EarthTec added to 60,000 gallons of water is equal to 1.0 ppm metallic copper. In order to attain 1.0 ppm of metallic copper in the treated water, the amount of EarthTec added to a water body is equal to the gallons of water being treated divided by 60,000 multiplied by 1 (e.g., see Gallons of EarthTec and Water table below). Use volumetric measurement devices that are calibrated in accordance with manufacturer specifications.

Gallons of EarthTec and Water		
Gallons EarthTec	Gallons Water	Metallic Copper ppm
0.1 (0.4 quarts or 0.8 pints)	6,000	1.0
¼ (1 quart)	15,000	1.0
1	60,000	1.0
1 ⅓	100,000	1.0

Use formula for calculating water volume and flow rates. Calculate the volume of water (multiply the average depth by surface area). To calculate the gallons of water, multiply the volume in cubic feet times 7.5. One cubic foot per second of flow equals 27,000 gallons/hour. One-acre foot equals 326,000 gallons. See below for additional directions on methods of application to flowing water and aerial spraying on rice fields.

SPECIFIC DIRECTIONS FOR USE

To Control Algae, Nonpublic Health Bacteria, and Bacteria That Cause Odor Problems in Irrigation Reservoirs, Impounded Waters, Lakes, Ponds, Lagoons, Reservoirs, Livestock Watering Systems, Potable Water Supplies^{*}, Sedimentation Basins, and Ornamental Water Features or Fountains:** For fish-bearing lakes, ponds, drinking water reservoirs, irrigation canals and other listed applications, it is recommended to apply at the rate of 1 quart of EarthTec per 250,000 gallons of water, or 1 gallon of EarthTec per 1,000,000 gallons of water for preventive treatment of algae and nonpublic health bacteria. This will yield a concentration of 0.06 ppm metallic copper. Increase as necessary to achieve control but do not exceed a resulting copper concentration of 1.0 mg/L of metallic copper (background + applied copper) in the treated water.

If algae are present, treat at the rate of 3 quarts of EarthTec per 250,000 gallons of water, or 3 gallons of EarthTec per 1,000,000 gallons of water. This will yield a concentration of 0.18 ppm metallic copper.

For applications without fish or for wastewater lagoons apply at the rate of up to 1 quart of EarthTec per 15,000 gallons of water, or 1 gallon of EarthTec per 60,000 gallons of water. This will yield a rate of 1.0 ppm metallic copper. Do not exceed a resulting concentration of 1.0 mg/L of metallic copper (background + applied copper) in the treated water.

Do not exceed 1 gallon of EarthTec per 60,000 gallons of water (1.0 ppm metallic copper background + applied) under any circumstances for water destined for use as drinking water. EarthTec may be poured into the water manually after calculating the volume of water to be treated and measuring the quantity EarthTec necessary to attain a concentration of 0.06 ppm or by using an automated dispenser calibrated to release the required amount. For best results disperse EarthTec evenly throughout the body of water on a sunny day when algae are near the surface. Do not apply copper sulfate to water with less than 50 ppm alkalinity.

To Control and Suppress Algae, Nonpublic Health Bacteria and Bacteria that Cause Taste and Odor Problems in Potable Water Supplies^{†}; Canals; Aqueducts; and equipment/structures that deliver the treated water directly to publicly owned water treatment facilities to include pipes, intake structures, gatehouses, screens, pumping stations, weirs, and penstocks:** For flowing waters use a metering pump to apply a continuous dose so as to achieve a final dilution not to exceed 1.0 mg/L as copper (16.7 ppm as EarthTec). Preferably start with 1 to 4 ppm EarthTec (0.06 to 0.24 mg/L metallic copper) and increase only as necessary. A continuous maintenance dose of 0.6 to 2.0 ppm EarthTec (yielding a metallic copper concentration of 36 to 120 ppb, or micrograms per liter) can be used to prevent further growth. Start treatment at the first sign of algae problems and stop treatment when algae no longer pose a nuisance.

To Control Algae and Tadpole Shrimp in Rice Fields: Apply any time the tadpole shrimp appears from planting time until the seedlings are well rooted and have emerged through the water or at the first sign of algae growth on the surface of the field. Applications are most effective when made prior to algae leaving the soil surface and rising to the water surface and prior to appearance of the tadpole shrimp. Factors such as water depth, temperature, pH and the amount of algae can affect the amount of EarthTec needed to control algae and tadpole shrimp. If the depth of water is 8 inches, apply 9 gallons of EarthTec per acre. If the depth of water is 4 inches, apply 4½ gallons of EarthTec per acre. EarthTec can be metered into the rice field as water is being applied or by aerial application. Do not exceed a copper concentration in water of 2.5 ppm of metallic copper concentration (9 gallons of EarthTec per acre with 8-inch depth of water or 13½ gallons of EarthTec per acre foot of water). If tadpole shrimp are not present, do not exceed 1.0 ppm metallic copper.

To Control Algae or Nonpublic Health Bacteria and Bacteria That Cause Odor Problems in Open Channel Irrigation Conveyance Systems and Chemigation Systems, Ditches, and Canals: To prevent algae growth using a static application method, apply 1 gallon of EarthTec to 1,000,000 gallons of water to yield a rate of 0.06 ppm metallic copper in the water. If algae are present, apply 16.6 gallons of EarthTec to 1,000,000 gallons of water to yield 1.0 ppm metallic copper. To prevent algae growth using continuous flow systems, a metered flow rate of 1 milliliter per minute is added to a pumping flow of 267 gallons per minute to yield a rate of 0.06 ppm metallic copper. If algae are present, do not exceed the total dose of 1 gallon of EarthTec in 60,000 gallons of water (1.0 ppm metallic copper). See Example Calculation table below for continuous flow rates.

To Control Algae or Nonpublic Health Bacteria and Bacteria That Cause Odor Problems in Sprinkler, Drip or Other Types of Irrigation Equipment: Agitation is not required. Do not mix with basic substances. EarthTec must be applied continuously for the duration of the water application. To prevent growth of algae, nonpublic health bacteria, and bacteria that cause odor problems, treat at a rate of 1 gallon EarthTec per 60,000 gallons of water to 1 gallon EarthTec per 1,000,000 gallons of water. This will yield a rate of 1.0 ppm to 0.06 ppm metallic copper (see Example Calculation table below). If algae are visible, start by cleaning the pipes or lines and then applying 1 gallon of EarthTec in 60,000 gallons of water (1.0 ppm metallic copper). See Example Calculation table below for continuous flow rates. Once the lines are cleaned, use the preventive dose described above.

EXAMPLE CALCULATION

CHEMIGATION AND IRRIGATION FLOW RATES (0.06 ppm Cu)				
Water Flow Rate gpm	Water Flow Rate cfm	Dosage Rate ppm Metallic Cu	EarthTec fl oz/min	Feeder Pump Setting EarthTec mL/min
3,000	400	0.06	0.4	11.3
6,000	800	0.06	0.8	22.6
9,000	1,200	0.06	1.1	34.0
12,000	1,600	0.06	1.5	45.3

CHEMIGATION AND IRRIGATION FLOW RATES (1.0 ppm Cu)				
Water Flow Rate gpm	Water Flow Rate cfm	Dosage Rate ppm Metallic Cu	EarthTec fl oz/min	Feeder Pump Setting EarthTec mL/min
3,000	400	1.0	6.4	188.7
6,000	800	1.0	12.8	377.5
9,000	1,200	1.0	19.1	566.2
12,000	1,600	1.0	25.5	755.0

To Control Algae and Nonpublic Health Bacteria and Bacteria That Cause Odor Problems in Aquacultural Ponds: Apply at the rate of ¼ to ½ gallon of EarthTec per acre foot (326,000 gallons) of water to yield concentrations ranging from 0.05 ppm to .09 ppm metallic copper, respectively. Metallic copper concentration is directly proportional to amount of EarthTec added per acre foot. A maintenance dose of 4 to 8 fluid ounces per acre foot may be used every 14 days. The rate is dependent on water temperature, fish density and the degree of suppression targeted.

Computation for Aquacultural Ponds of Amount of EarthTec Applied		
One Acre Foot (12 Inches Deep)		
Gallons EarthTec	Gallons Water	Copper ppm
0.25	326,000	0.05
0.5	326,000	0.09

To Control Algae and Nonpublic Health Bacteria, and Bacteria That Cause Odor Problems in Residential Swimming Pools, Spas and Hot Tubs: For pools, apply at the rate of 2 fluid ounces of EarthTec per 1,000 gallons of water (20 fluid ounces per 10,000 gallons). For spas and hot tubs, apply at the rate of 6 mL of EarthTec per 100 gallons of water using supplied measuring cup. These dosages will yield a rate of 0.9 ppm metallic copper. Treated pool effluent should not be discharged where it will drain into lakes, streams, ponds or public water. Application should be made before visible algae appear.

Every 14-days, test the copper level using a standard commercial swimming pool copper test kit. Add EarthTec to raise level back to 0.9 ppm (see tables). The amount of EarthTec to be added is proportional to the starting concentration and volume of water. Do not exceed 1.0 ppm metallic copper.

MAINTAINING METALLIC COPPER CONCENTRATION IN POOLS

Pool Volume (gallons)	7,000	8,000	9,000	10,000	11,000	12,000	13,000	14,000
Measured Metallic Copper Level in Pool	ADDITIONAL FLUID OUNCES OF EARTHTEC ADDED TO MAINTAIN CONTROL							
0.9 ppm	0	0	0	0	0	0	0	0
0.8 ppm	1	1	2	2	2	2	2	3
0.7 ppm	3	3	4	4	5	5	5	6
0.6 ppm	4	5	5	6	6	7	8	9
0.5 ppm	6	7	7	8	10	10	11	12
0.4 ppm	8	9	10	11	13	13	14	15
0.3 ppm	9	10	12	13	15	15	16	18
0.2 ppm	11	12	14	15	17	18	20	21
0.1 ppm	12	14	15	17	19	20	22	24

MAINTAINING METALLIC COPPER CONCENTRATION IN SPAS

Spa Volume (gallons)	100	200	300	400	500	700	800	900	1,000
Measured Metallic Copper Level in Spa	ADDITIONAL MILLILITERS OF EARTHTEC ADDED TO MAINTAIN CONTROL								
0.9 ppm	0	0	0	0	0	0	0	0	0
0.8 ppm	1	1	2	3	3	4	5	6	6
0.7 ppm	1	3	4	5	6	9	10	11	13
0.6 ppm	2	4	6	8	9	13	15	17	19
0.5 ppm	3	5	8	10	13	18	20	23	25
0.4 ppm	3	6	9	13	16	22	25	28	32
0.3 ppm	4	8	11	15	19	27	30	34	38
0.2 ppm	4	9	13	18	22	31	35	40	44
0.1 ppm	5	10	15	20	25	35	40	45	51

An alternate method is to apply at the rate of 1 fluid ounce of EarthTec per 1,000 gallons of water. This will yield a rate of 0.45 ppm metallic copper. Repeat a maintenance dosage of 1 fluid ounce of EarthTec per 1,000 gallons of water once a month to maintain control. Application should be made before visible algae appear. Where visible algae are present apply at a rate of 2 fluid ounces of EarthTec per 1,000 gallons of water. This will yield a rate of 0.9 ppm metallic copper.

BACTERIAL ODOR CONTROL

To Control Bacterial Odor in Feedlot Run-Off Lagoons, Animal Waste or Confinement Pits, and Organic Sludge Pits: Apply by pouring product directly from the container into the pit or lagoon. Several application points speed up dispersal. Use 1 gallon of full strength EarthTec in 60,000 gallons (8,000 cubic feet) of sewage. This will yield a rate of 1.0 ppm metallic copper. Bacteria and odors should be noticeably reduced in 1 to 2 weeks. Repeat application when odor reoccurs. Minimum re-treatment interval is 14 days.

Feedlot Run-Off Lagoons: Add a portion of the required dosage of EarthTec at several locations around the lagoon to speed dispersal of the product. A minimum of 2 applications per year (spring and fall) is recommended. Additional applications may be required as needed when the lagoon is pumped.

Animal Waste or Confinement Pits: If pits are located under the confinement buildings, add EarthTec directly to these pits. If the pits are outside, add product to the transfer line to the pit.

MOLLUSCICIDE

OPEN WATERS

To Control Quagga and Zebra Mussels in Lakes, Ponds, Lagoons, Reservoirs, and Potable Water Supplies^{*}:** In open or slow-moving, quiescent waters use as a curative measure, i.e., when mussels (veliger, juvenile or adult) have been detected. EarthTec is miscible in water and has ionic diffusion properties that cause it to readily disperse throughout the water column. Apply near the water surface and allow to disperse, or where means exist, deliver via hose and pump to the depths, sites, and surfaces of worst infestation. When applying to large areas, dispense along a route with gaps no greater than 200 feet. When fish are present, do not treat more than one-half of the body of water at a time, starting near one shore and moving outward in bands so as to allow fish to move away. When treating half of a body of water, the second half must not be treated within 14 days from the last treatment.

For effective control of adult and juvenile mussels, apply at the recommended rate of 2 to 16 parts per million EarthTec (i.e., 2 to 16 gallons of EarthTec per million gallons of water) to yield a rate of 0.120 to 0.960 mg/L (ppm) metallic copper. Do not exceed 1.0 mg/L (equivalent to 16.7 ppm EarthTec) metallic copper in any single application or in the treated water (background + applied). Allow at least 4 days for mortality to occur. Colder water temperatures may require longer exposures and doses closer to the high end of the allowable range. Within the half of the water body being treated repeat applications are permissible if needed to maintain lethal concentrations of copper for sufficient time period. When re-applying, do not exceed a resulting concentration of 1.0 mg/L of metallic copper (background + applied copper) in the treated water. Do not treat the second half of the body of water within 14 days of the last treatment of the first half.

Effective control can also be achieved by longer exposures (e.g., 5-30 days) at lower doses (1 to 5 parts per million EarthTec, to yield a rate of 0.06 to 0.30 mg/L (ppm) metallic copper.) Repeat doses are permissible and may be required for severe infestations. When reapplying, do not exceed a resulting concentration of 1.0 mg/L (ppm) metallic copper in the treated water (background + applied).

Dose Rate for Molluscicide EarthTec in Open Waters (LOW DOSES)

Acres	Depth (ft)	Acre-Ft to Treat	Million Gallons to Treat	Desired ppm, EarthTec	Desired ppm, as copper	EarthTec Dose Rate (gals)	Desired ppm, EarthTec	Desired ppm, as copper	EarthTec Dose Rate (gals)
0.1	3	0.3	0.1	1.0	0.06	0.10	2.0	0.12	0.20
0.5	3	1.5	0.5	1.0	0.06	0.50	2.0	0.12	1
1	3	3.0	1.0	1.0	0.06	1	2.0	0.12	2
1	6	6.0	2.0	1.0	0.06	2	2.0	0.12	4
10	3	30	10	1.0	0.06	10	2.0	0.12	20
10	4.5	45	15	1.0	0.06	15	2.0	0.12	30
10	6	60	20	1.0	0.06	20	2.0	0.12	40
20	3	60	20	1.0	0.06	20	2.0	0.12	40
100	3	300	100	1.0	0.06	100	2.0	0.12	200
1000	3	3,000	1,000	1.0	0.06	1,000	2.0	0.12	2,000

Dose Rate for Molluscicide EarthTec in Open Waters (MEDIUM DOSES)

Acres	Depth (ft)	Acre-Ft to Treat	Million Gallons to Treat	Desired ppm, EarthTec	Desired ppm, as copper	EarthTec Dose Rate (gals)	Desired ppm, EarthTec	Desired ppm, as copper	EarthTec Dose Rate (gals)
0.1	3	0.3	0.1	4.0	0.240	0.40	10.0	0.600	1.00
0.5	3	1.5	0.5	4.0	0.240	2.00	10.0	0.600	5
1	3	3.0	1.0	4.0	0.240	4	10.0	0.600	10
1	6	6.0	2.0	4.0	0.240	8	10.0	0.600	20
10	3	30	10	4.0	0.240	40	10.0	0.600	100
10	4.5	45	15	4.0	0.240	60	10.0	0.600	150
10	6	60	20	4.0	0.240	80	10.0	0.600	200
20	3	60	20	4.0	0.240	80	10.0	0.600	200
100	3	300	100	4.0	0.240	400	10.0	0.600	1,000
1000	3	3,000	1,000	4.0	0.240	4,000	10.0	0.600	10,000

Dose Rate for Molluscicide EarthTec in Open Waters (MAXIMUM DOSE)

Acres	Depth (ft)	Acre-Ft to Treat	Million Gallons to Treat	Desired ppm, EarthTec	Desired ppm, as copper	EarthTec Dose Rate (gals)
0.1	3	0.3	0.1	16.7	1.0	1.7
0.5	3	1.5	0.5	16.7	1.0	8.4
1	3	3.0	1.0	16.7	1.0	16.7
1	6	6.0	2.0	16.7	1.0	33.5
10	3	30	10	16.7	1.0	167
10	4.5	45	15	16.7	1.0	251
10	6	60	20	16.7	1.0	335
20	3	60	20	16.7	1.0	335
100	3	300	100	16.7	1.0	1,673
1000	3	3,000	1,000	16.7	1.0	16,733

For reference:

1 acre-foot = 325,851 gal

1 million gal = 3.07 acre-feet

1 hectare = 2.47 acres

1 meter = 3.28 feet

1 ppm (1 part per million) = 1 mg/L and/or 1 gal per million gallons 1 gal = 3.785 mL

When calculating dose rates for a given volume of water, achieve a desired concentration of metallic copper in the water to be treated by using the following general formula:

$$\frac{\text{Gallons of EarthTec Applied}}{\text{Million Gallons to be Treated}} \times 0.06 = \text{parts per million Copper in the Treated Water}$$

For example, treating 3 million gallons with 4.5 gallons of EarthTec (a rate of 1.5 ppm as EarthTec) will yield a final copper dose of:

$$(4.5 \text{ gals} / 3 \text{ million gallons}) \times 0.06 = 0.09 \text{ mg/L as copper} = 90 \text{ ppb as copper}$$

Always use volumetric measurement devices that are calibrated in accordance with manufacturer specifications.

FLOWING WATERS

To Control the Mollusk Pests Quagga and Zebra Mussels in flowing potable water supplies^{*}; canals; ditches; aqueducts; and equipment/structures that deliver the treated water directly to publicly owned water treatment facilities to include pipes, intake structures, gatehouses, screens, pumping stations, weirs, penstocks:** In flowing waters, use when mollusks (veliger, juvenile, or adult) have been detected. May be used as a curative measure when adult or juvenile mollusks are present, or as a preventative measure (to inhibit colonization) when adults and/or planktonic larval mollusks have been detected.

EarthTec may be used continuously on flowing waters as a means of preventing further spread and colonization of mollusks. Start the continuous application when mollusks are present and end application when mollusks are no longer present. Use a metering pump to apply a continuous dose so as to achieve a final dilution of 1 to 16 ppm EarthTec (0.06 to 0.96 ppm metallic copper, or mg/L). Do not exceed 1.0 ppm free metallic copper (background + applied) in the flowing water, equivalent to 16.7 ppm as EarthTec. If adult mollusks are already present, allow at least 4 days for mortality to occur, or longer for very well-established populations where adults appear in clumps. For most situations satisfactory control will be obtained at a continuous dose of 1 to 5 ppm EarthTec (i.e., 0.06 to 0.30 mg/L (ppm) metallic copper). Colder water temperatures may require longer exposure and a dose rate closer to the high end of the allowable range.

Once the initial infestation has been cleared from surfaces, a continuous maintenance dose of 0.6 to 2.0 ppm EarthTec (yielding a metallic copper concentration of 36 to 120 ppb) can be used to prevent further colonization.

Example Dose Rates for EarthTec in Flowing Waters (LOW DOSE)

			EarthTec				EarthTec			
			Desired	Desired	Feed	EarthTec	Desired	Desired	Feed	EarthTec
cfs	gal/min	MGD	ppm, EarthTec	ppm, as copper	Rate (fluid oz/min)	Feed Rate (ml/min)	ppm, EarthTec	ppm, as copper	Rate (fluid oz/min)	Feed Rate (ml/min)
1	449	0.65	1.0	0.06	0.06	1.70	2.0	0.12	0.11	3.40
1.55	696	1.0	1.0	0.06	0.09	2.63	2.0	0.12	0.18	5.27
3	1,346	1.9	1.0	0.06	0.17	5.10	2.0	0.12	0.34	10.2
4	1,795	2.6	1.0	0.06	0.23	6.80	2.0	0.12	0.46	13.6
5	2,244	3.2	1.0	0.06	0.29	8.49	2.0	0.12	0.57	17.0
10	4,488	6.5	1.0	0.06	0.57	17.0	2.0	0.12	1.15	34.0
15.47	6,943	10	1.0	0.06	0.89	26.3	2.0	0.12	1.78	52.6
50	22,442	32	1.0	0.06	2.87	84.9	2.0	0.12	5.74	170
100	44,883	65	1.0	0.06	5.74	169.9	2.0	0.12	11.5	340
155	69,429	100	1.0	0.06	8.89	262.8	2.0	0.12	17.8	526
1,000	448,830	646	1.0	0.06	57	1,699	2.0	0.12	115	3,398

Example Dose Rates for EarthTec in Flowing Waters (MEDIUM AND HIGH DOSES)

			EarthTec				EarthTec			
			Desired	Desired	Feed	EarthTec	Desired	Desired	Feed	EarthTec
cfs	gal/min	MGD	ppm, EarthTec	ppm, as copper	Rate (fluid oz/min)	Feed Rate (ml/min)	ppm, EarthTec	ppm, as copper	Rate (fluid oz/min)	Feed Rate (ml/min)
1	449	0.65	5.0	0.30	0.29	8.49	16.0	0.96	0.92	27.2
1.55	696	1.0	5.0	0.30	0.45	13.2	16.0	0.96	1.42	42.1
3	1,346	1.9	5.0	0.30	0.86	25.5	16.0	0.96	2.76	81.5
4	1,795	2.6	5.0	0.30	1.15	34.0	16.0	0.96	3.68	109
5	2,244	3.2	5.0	0.30	1.44	42.5	16.0	0.96	4.60	136
10	4,488	6.5	5.0	0.30	2.87	84.9	16.0	0.96	9.19	272
15.47	6,943	10	5.0	0.30	4.44	131	16.0	0.96	14.2	420
50	22,442	32	5.0	0.30	14.4	425	16.0	0.96	46.0	1,359
100	44,883	65	5.0	0.30	28.7	849	16.0	0.96	91.9	2,718
155	69,429	100	5.0	0.30	44.4	1,314	16.0	0.96	142	4,205
1,000	448,830	646	5.0	0.30	287	8,494	16.0	0.96	919	27,180

MGD = Million Gallons per Day

cfs = Cubic Feet per Second

AERIAL SPRAY DRIFT MANAGEMENT

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and method of application (e.g., ground and aerial) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

Droplet Size

Apply only as a medium or coarser spray (ASAE standard 572) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.

Wind Speed

Do not apply at wind speeds greater than 15 mph. Only apply this product if the wind direction favors on-target deposition (approximately 3 to 10 mph) and there are no sensitive areas within 250 feet downwind.

Temperature Inversions

If applying at wind speeds less than 3 mph, the applicator must determine if a) conditions of temperature inversion exist, or b) stable atmospheric conditions exist at or below nozzle height. Do not make applications into areas of temperature inversions or unstable atmospheric conditions.

Other State and Local Requirements

Applicators must follow all state and local pesticide drift requirements regarding application of copper compounds. Where states have more stringent regulations, they must be observed.

Equipment

All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

For Aerial Applications

The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.

Release spray at the lowest height consistent with efficacy and flight safety. Do not release spray at a height greater than 10 feet above the water surface unless a greater height is required for aircraft safety.

When applications are made with a crosswind, the swath must be displaced downwind. The applicator must compensate for this displacement at the up and downwind edge of the application area by adjusting the path of the aircraft upwind.

APPLICATION AND HANDLING EQUIPMENT

Application, handling or storage equipment **MUST** consist of fiberglass, PVC, polypropylene, viton, corrosion resistant plastics or stainless steel. Never use mild steel, nylon, brass or copper around EarthTec. Always rinse and clean equipment thoroughly each night with plenty of fresh, clean water.

PESTICIDE STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in a safe place away from pets and keep out of the reach of children. Store away from excessive heat. ~~EarthTec will freeze.~~ Always store EarthTec above 32 degrees F. ~~(Do Not Freeze).~~ Freezing may cause product separation. Always keep container closed. Keep away from galvanized pipe, and any nylon storage or handling equipment.

DISPOSAL



PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess EarthTec 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. In the event of spill, neutralize with limestone or baking soda before disposal. May deteriorate concrete.

CONTAINER HANDLING: Nonrefillable Containers with capacities less than or equal to 5 gallons: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ 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 2 more times. Offer for recycling if available. If recycling is not available, puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Nonrefillable Containers with capacities greater than 5 gallons: Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. 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 ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least 1 complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure 2 more times. Offer for recycling if available. If recycling is not available, puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

~~Containers too large to shake:~~

Refillable Containers: Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure 2 more times. Offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Tanker trucks: Emptied container retains vapor and product residue. Observe all precautions stated on this label until the container is cleaned, reconditioned or destroyed. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, and worn-out threads and closures. Clean thoroughly before reuse for transportation of a material of different composition or before retiring this transport vehicle from service.

**IMPORTANT READ BEFORE USING
LIMITED WARRANTY AND LIMITATION OF REMEDIES**

Read the entire Directions for Use, Limited Warranty and Limitation of Remedies (including limitations on liability) before using this product. If terms are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following conditions, disclaimer of warranties and limitations of liability.

The Directions for Use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the 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 Earth Science Laboratories, Inc. To the extent consistent with applicable law, all such risks shall be assumed by the user or buyer.

To the extent consistent with applicable law, seller warrants that the product conforms to the chemical description and is reasonably fit for the purpose stated on the label for use under normal conditions, but makes no other warranties of FITNESS OR MERCHANTABILITY expressed or implied, or any other warranty if the product is used contrary to the label instructions, or under conditions not foreseeable to the seller. To the extent consistent with applicable law, the seller shall not be liable for more than the cost of this product to the buyer and will in no event be liable for any consequential, special or indirect damages connected with the use or handling of this product. This product is offered and the buyer or user accepts it subject to the foregoing terms which may not be varied. Seller makes no warranty for product which has been frozen.



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