

# EARTHTEC<sup>®</sup> QZ

## Algaecide/Nonpublic Health Bactericide/Molluscicide

For Control of Algae, Nonpublic Health Bacteria, Aquatic Weeds, Mollusks, Leeches and Snails

Molluscicide For Control of Mollusk Pests including Quagga and Zebra Mussels

Classified for  
“RESTRICTED USE”  
in New York State  
under 6NYCRR Part 326

### 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 lbs. per gallon (1.188 kg/L) and contains 0.493 lbs. elemental copper per gallon.

ACCEPTED  
FOR REGISTRATION

Doc. ID 582972

Sept. 08, 2022

New York State Department  
of Environmental Conservation  
Division of Solid & Hazardous Materials  
Pesticide Product Registration

**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 label booklet for First Aid, Precautionary Statements, Directions for Use, and Storage and Disposal.**



Certified to  
NSF/ANSI/CAN 60

#### MANUFACTURED BY:

Earth Science Laboratories, Inc.  
903 N. 47th Street, Suite 105  
Rogers, AR 72756  
Phone: 800-257-9283

#### NET CONTENTS:

BULK

EPA REGISTRATION NO.: 64962-1

EPA Establishment No.: 64962-NE-001

Batch No.:

## FIRST AID

<b>IF IN EYES:</b>	Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
<b>IF SWALLOWED:</b>	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.
<b>IF ON SKIN OR CLOTHING:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
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. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

### Personal Protective Equipment (PPE)

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

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material such as polyvinyl chloride  $\geq$  14 mls, polyethylene or Viton  $\geq$  14 mls
- Protective eyewear (goggles, face shield, or safety glasses)

### 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.

## ENGINEERING CONTROLS

Pilots must use an enclosed cab that meets the definition listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.305).

### USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- 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.

**Fish Advisory Statement:** This copper product is toxic to fish and aquatic organisms. Unlike most organic pesticides, copper is an element and will not break down in the environment and will therefore accumulate in sediment with repeated applications. Copper is a micronutrient, but its pesticidal application rate exceeds the amount of copper needed as a nutrient.

## 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.

### **AGRICULTURAL USE REQUIREMENTS**

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 is: coveralls, protective eyewear, chemical resistant gloves (i.e., gloves made of any waterproof material) and shoes plus socks.

### **NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are not within the scope of the Worker Protection Standard for agricultural pesticides 40 CFR part 170. The WPS applies when this product is used to produce plants on farms, forests, nurseries, or greenhouses.

Do not allow re-entry into treated areas until sprays have dried.

## **RESISTANCE MANAGEMENT**

### **BACTERICIDE USE**

For resistance management, EarthTec QZ contains a Group (Not Classified) bactericide. Any bacterial population may contain individuals naturally resistant to EarthTec QZ and other Group (Not Classified) bactericides. A gradual or total loss of pest control may occur over time if these fungicides/bactericides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

To delay bactericide resistance, take one or more of the following steps:

- Rotate the use of EarthTec QZ or other Group (Not Classified) bactericides within a growing season sequence with different groups that control the same pathogens.
- Use tank mixtures with bactericides from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for bactericide use that includes scouting, uses historical information related to pesticide use, and crop rotation, and which considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological, and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time bactericide applications. Note that using predictive models alone is not sufficient to manage resistance.
- Monitor treated bacterial populations for resistance development.
- Contact your local extension specialist or certified crop advisor for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information or to report suspected resistance contact Earth Science Laboratories, Inc. at 800-257-9283. You can also contact your pesticide distributor or university extension specialist to report resistance.

### **AQUATIC USE**

Water bodies or management units should be scouted prior to application to identify the weed species present and their growth stage to determine if the intended application will be effective. Water bodies or management units should be scouted after application to verify that the treatment was effective.

Suspected herbicide-resistant weeds may be identified by these indicators:

- Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
- A spreading patch of non-controlled plants of a particular weed species; and
- Surviving plants mixed with controlled individuals of the same species.

Report any incidence of non-performance of this product against a particular weed species to Earth Science Laboratories, Inc., their representative or call 800-257-9283. If resistance is suspected, treat weed escapes with an herbicide having a different mechanism of action and/or use non-chemical means to remove escapes, as practical, with the goal of preventing further reproduction.

Implement the Early Detection, Rapid Response practice and Maintenance Control by using the following practices where possible:

- Identify weeds present in a management unit through scouting or history of the water body and understand the biology of target species.
- Applications should target weeds when populations are small and there is low biomass, early in the season to maximize efficacy.
- Applications should be made so that the herbicide contacts the weed. Use the appropriate application method for the use site/weed/chemical combination.
- Weed escapes should not be allowed to go to seed or produce asexual vegetative propagules.
- Use a diversified approach toward weed management. Whenever possible incorporate multiple weed-control practices such as mechanical control, biological management practices, and rotation of MOAs.
- Time applications to have the highest probability for control and minimize need for follow-up control measures. Apply during conditions that minimize herbicide degradation (light/temperature/microbes) and/or dissipation (water exchange).

Contact your local sales representative, local water management agency, or extension agent to find out if suspected resistant weeds to this MOA have been found in your region. If resistant biotypes of target weeds have been reported, use the application rates of this product specified for your local conditions. Tank mix products so that there are multiple effective mechanisms of actions for each target weed.

## SPRAY DRIFT

### Aerial Applications:

- Do not release spray at a height greater than 10 ft. above the vegetative canopy or water, unless a greater application height is necessary for pilot safety.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speed exceeds 15 mph at the application site. If the windspeed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.
- Applicators must use ½ swath displacement upwind at the downwind edge of the application area.
- Do not apply during temperature inversions.

### Ground Boom Application:

- Apply with the spray release height recommended by the manufacturer, but no more than 4 feet above the ground or crop canopy.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- Do not apply during temperature inversions.

## SPRAY DRIFT ADVISORIES

**THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.**

### IMPORTANCE OF DROPLET SIZE

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

#### Controlling Droplet Size – Ground Boom

- Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

#### Controlling Droplet Size – Aircraft

- **Adjust Nozzles** - Follow nozzle manufacturers recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

#### BOOM HEIGHT – Ground Boom

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, the boom should remain level with the crop and have minimal bounce.

#### RELEASE HEIGHT - Aircraft

Higher release heights increase the potential for spray drift. When applying aerially to crops, do not release spray at a height greater than 10 ft. above the crop canopy, unless a greater application height is necessary for pilot safety.

#### SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

#### TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

#### TEMPERATURE INVERSIONS

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

#### WIND

Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

## AQUATIC USE PRECAUTION

(excluding fountains and aquatic agriculture)

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 biomass. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, do not treat more than ½ of the water body and wait at least 14 days between treatments to avoid depletion of oxygen due to decaying vegetation (excluding water infrastructure and constructed conveyances such as drainage and irrigation canals, ditches and pipelines and aqueducts for drinking water or irrigation use). 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.

Application of algaecides to high density blooms of cyanobacteria can result in the release of intracellular contents into the water. Some of these intracellular compounds are known mammalian hepato- and nervous system toxins. Therefore, to minimize the risk of toxin leakage, manage cyanobacteria effectively in order to avoid applying this product when blooms of toxin-producing cyanobacteria are present at high density. In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper at intervals shorter than 14 days should the circumstance demand.

Certain water conditions including low pH ( $\leq 6.5$ ), 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 pH values  $> 6.5$ , DOC levels  $> 3.0$  mg/L, and alkalinity greater than 50 mg/L. Avoid treating waters with pH values  $< 6.5$ , DOC levels  $< 3.0$ , and alkalinity less than 50 ppm (e.g., soft or acid waters), as trout and other sensitive species of fish may be killed under such conditions if present.

Consult your state department of natural resources or fish and game agency before applying this product to public waters. Permits may be required before treating such waters.

## 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 QZ. Always rinse and clean equipment thoroughly each night with plenty of fresh, clean water.

## PRODUCT INFORMATION

EarthTec QZ is an algacide, nonpublic health bactericide and molluscicide consisting of a soluble formulation of copper. EarthTec QZ's proprietary formulation ensures that the active ingredient - metallic copper - is delivered in the form of the biologically available cupric ion, Cu<sup>++</sup>. EarthTec QZ is soluble and will quickly disperse.

EarthTec QZ 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 or nonpublic health bacteria, or affected by physical properties.

## APPLICATION INSTRUCTIONS

EarthTec QZ may be applied throughout the year. For algae control, apply in the late spring or early summer 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. Preferably, the water should be clear with temperature above 60 degrees F (15.6 degrees C). Higher doses may be required for lower water temperatures, higher algae concentrations, and for hard waters. See **Specific Directions for Use** section.

Apply EarthTec QZ through metering pump, subsurface hoses or from a properly equipped moving boat into the body of water. For best results disperse EarthTec QZ evenly throughout the body of water on a sunny day when algae are near the surface. EarthTec QZ is soluble and will quickly disperse.

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**.

EarthTec QZ may be poured directly into ponds, small lakes, and reservoirs 3 acres or less in area. For larger bodies of water, of 3 acres or more, apply EarthTec QZ at several points in the ponds, lakes, or reservoirs. Larger bodies of water may be treated with EarthTec QZ 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 QZ 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 QZ may be applied to irrigation systems by a drip system or feeder pump according to the flow volume.

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.

### Pre-Application Dose Determination

For algae and aquatic plant treatments, applicators should conduct initial dose determination tests simulating a full-scale treatment program to determine the minimum efficacious concentrations for eliminating the target species, unless an effective dose is already known for the given target pest population.

## USE RATES

### Direct Applications to Whole Water Bodies

Apply 0.33 to 1.3 gallons EarthTec QZ (0.06 to 0.24 ppm metallic copper) (1 to 4 gallons EarthTec QZ per million gallons water) per acre-foot per application. Increase as necessary to achieve control but do not exceed 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) in the treated water. If algae are present, use the higher labeled rate. Do not apply to more than one-half of the water body at a time. Stagger treatments at 14-day intervals. See **Specific Directions for Use** section for additional treatment instructions.

#### Restrictions:

- Do not apply more than 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) per application.
- Do not apply more than 44.5 gallons EarthTec QZ (21.9 lbs. metallic copper) per acre-foot per year (8 applications per year at up to 1 ppm). This rate/frequency is calculated based on staggering the treatment of each half of the water body every 14 days (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) for eight months (244 days).

### Direct Application to Sections of a Waterbody (Water Management Units)

Apply 0.33 to 1.3 gallons EarthTec QZ (0.06 to 0.24 ppm metallic copper) per acre-foot per application. Increase as necessary to achieve control but do not exceed 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) in the treated water. Applicators must wait at least 14 days before beginning retreatment. See **Specific Directions for Use** section for additional treatment instructions.

#### Restrictions:

- Do not apply more than 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) per application.
- Do not apply more than 94 gallons EarthTec QZ (46.6 lbs. metallic copper) per acre-foot (16.7 ppm metallic copper) per year (17 applications per year at up to 1 ppm). This rate/frequency is calculated based on the maximum number of possible applications allowed based on a 14-day minimum (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) retreatment interval for eight months (244 days). Do not apply more than 46.6 lbs. of metallic copper to a water management unit, regardless of the pest(s) targeted by applications.

**Note:** In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper in excess of 46.6 lbs. of metallic copper per acre-foot per year for a single water management unit.

**GALLONS OF EARTHTEC QZ AND WATER**

Gallons EarthTec QZ	Gallons Water	Metallic Copper (ppm)
0.1 (0.4 quart or 0.8 pint)	6,000	1.0
0.25 (1 quart)	15,000	1.0
1	60,000	1.0
1.66	100,000	1.0
2.50	150,000	1.0
3.33	200,000	1.0
8.33	500,000	1.0
16.66	1,000,000	1.0

**Example:** To achieve 1.0 ppm of metallic copper, 1 gallon of EarthTec QZ 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 QZ added to a water body is equal to the gallons of water being treated divided by 60,000 multiplied by 1 (see above). Use volumetric measurement devices that are calibrated in accordance with manufacturer specifications.

Use the following formulas for calculating water volume and flow rates:

- To calculate the volume of water, multiply the average depth by surface area. One acre foot equals 326,000 gallons.
- 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.

See **Specific Directions for Use** section for additional treatment instructions.

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**. For use in controlling algae and cyanobacteria at all aquatic application sites do not exceed a concentration 1.0 ppm (equivalent to 16.7 ppm EarthTec QZ) of metallic copper in the treated water.

**For Use in Flowing Waters**

For flowing waters use a metering pump to apply a continuous dose to achieve a final dilution not to exceed 1.0 ppm as metallic copper (16.7 gallons of EarthTec QZ) per million gallons of water. Start with 1 to 4 gallons of EarthTec QZ per million gallons of water (0.06 to 0.24 ppm metallic copper) and increase as necessary. A continuous maintenance dose of 0.6 to 2.0 gallons of EarthTec QZ per million gallons water (0.036 to 0.12 ppm metallic copper) 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. See **Specific Directions for Use** section for additional treatment instructions.

**SPECIFIC DIRECTIONS FOR USE**

**TO CONTROL ALGAE, NONPUBLIC HEALTH BACTERIA AND BACTERIA THAT CAUSE TASTE AND ODOR PROBLEMS**

**For Use in Irrigation Reservoirs, Impounded Waters, Lakes, Ponds, Lagoons, Reservoirs, Livestock Water Systems, Swimming Areas, Farm, Industrial, Retention and Golf Course Ponds, Aquaculture Ponds, Biological Fishponds or Systems, Potable Water Supplies\*, Irrigation and Chemigation Systems, Sedimentation Basins, and Ornamental Water Features or Fountains.**

For fish-bearing lakes, ponds, reservoirs, irrigation canals and other listed applications, apply at the rate of 1 quart of EarthTec QZ per 250,000 gallons of water, or 1 gallon of EarthTec QZ 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 ppm of metallic copper in the treated water. If algae are present, treat at the rate of 3 quarts of EarthTec QZ per 250,000 gallons of water, or 3 gallons of EarthTec QZ 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 QZ per 15,000 gallons of water, or 1 gallon of EarthTec QZ per 60,000 gallons of water. This will yield a rate of 1.0 ppm metallic copper.

EarthTec QZ may be poured into the water manually after calculating the volume of water to be treated and measuring the quantity EarthTec QZ 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 QZ evenly throughout the body of water on a sunny day when algae are near the surface.

In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper in excess of 44.5 gallons EarthTec QZ (21.9 lbs. of metallic copper) per acre-foot per year (8 applications per year at up to 1 ppm).

\*Water Destined to Be Used as Drinking Water (this water must receive additional and separate potable water treatment)

**Restrictions:**

- Do not apply more than 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) per application.
- When treating the whole water body, do not apply more than 44.5 gallons EarthTec QZ (21.9 lbs. metallic copper) per acre-foot per year (8 applications per year at up to 1 ppm). This rate/frequency is calculated based on staggering the treatment of each half of the water body every 14 days (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) for eight months (244 days).
- When treating sections of the water body (water management units) do not apply more than 94 gallons EarthTec QZ (46.6 lbs. metallic copper) per acre-foot (16.7 ppm metallic copper) per year (17 applications per year at up to 1 ppm). This rate/frequency is calculated based on the maximum number of possible applications allowed based on a 14-day minimum (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) retreatment interval for eight months (244 days). Do not apply more than 46.6 lbs. of metallic copper to a water management unit, regardless of the pest(s) targeted by applications.

**For Use in 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, tanks, and penstocks**

In flowing waters, make application using a metering pump to apply a continuous dose to achieve a final dilution not to exceed 5.5 gallons EarthTec QZ (1.0 ppm metallic copper) per acre-foot (16.7 ppm EarthTec QZ). Start with 1 to 4 ppm EarthTec QZ (0.06 to 0.24 ppm metallic copper) and increase only as necessary. A continuous maintenance

dose of 0.6 to 2.0 ppm EarthTec QZ (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.

\*Water Destined to Be Used as Drinking Water (this water must receive additional and separate potable water treatment)

#### For Use 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 QZ 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 QZ 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. See **Example Calculation** table below for continuous flow rates. If algae are present, do not exceed the total dose of 1 gallon of EarthTec QZ in 60,000 gallons of water (1.0 ppm metallic copper).

#### For Use in Constructed Irrigation Conveyance Systems, Laterals and Aqueducts

Apply into irrigation conveyance systems or laterals at up to a maximum rate of 1 gallon EarthTec QZ (0.5 lbs. metallic copper) per cubic foot per second of water per 5 to 30-mile treatment depending on water hardness, alkalinity, and algae concentration. Do not apply more than 26 gallons of EarthTec QZ (13 lbs. metallic copper) per year per 5 miles of conveyance per cubic foot per second (CFS).

#### For Use in Sprinkler, Drip, or Other Types of Irrigation Equipment

To prevent growth of algae, nonpublic health bacteria, and bacteria that cause odor problems, treat at a rate of 1 gallon EarthTec QZ per 60,000 gallons of water to 1 gallon EarthTec QZ per 1,000,000 gallons of water. This will yield a rate of 1.0 ppm to 0.06 ppm metallic copper. Agitation is not required. Do not mix with basic substances. EarthTec QZ must be applied continuously for the duration of the water application.

If algae are visible, start by cleaning the pipes or lines and then applying 1 gallon of EarthTec QZ 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 QZ fl oz/min	Feeder Pump Setting EarthTec QZ
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 QZ fl oz/min	Feeder Pump Setting EarthTec QZ
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	25.6	755.0

#### For Use in Biological Fishponds and Aquaculture Systems

Apply 0.25 to 1.4 gallons EarthTec QZ per acre-foot (equivalent to 0.05 to 0.25 ppm metallic copper). Monitor the copper concentration and when it falls below the desired concentration, make additional applications to bring the concentration back up to the desired concentration. EarthTec QZ can be applied once daily for 5 to 11 consecutive days.

##### Restrictions:

- Do not make daily applications for more than 11 consecutive days.
- Applicators must wait at least 14 days before beginning retreatment.
- Do not apply more than 93.2 gallons EarthTec QZ (46.6 lbs. metallic copper) per acre-foot in one year.

#### For Control of Leeches, Slugs and Snails

**For Use In Impounded Waters, Lakes, Ponds, Livestock Watering Systems, Reservoirs, Swimming Areas, Farm, Industrial, Retention and Golf Course Ponds, Aquaculture Ponds, Biological Fishponds or Systems, Irrigation and Chemigation Systems, Ornamental Water Features and Fountains.**

**Snails:** When snails are present apply EarthTec QZ at a rate of 2 ppm on day 1, equivalent to 0.12 ppm as copper. Reapply EarthTec QZ at the rate of 1 ppm on days 3, 5 and 7. Repeat weekly as necessary to control snails.

**Leeches and Slugs:** For effective control, apply at the rate of 2 to 16 ppm EarthTec QZ (i.e., 2 to 16 gallons of EarthTec QZ per million gallons of water) to yield a rate of 0.120 to 0.96 ppm metallic copper.

##### Restrictions:

- Do not exceed 1.0 ppm (equivalent to 16.7 ppm EarthTec QZ) metallic copper in any single application or in the treated water.

**FOR USE AS A MOLLUSCIDICIDE**  
**Including Quagga and Zebra Mussels**

**FOR USE IN OPEN WATERS**

**In Lakes, Ponds, Lagoons, Reservoirs, Sedimentation Basins, Canals and Ditches and Potable Water Supplies\***

EarthTec QZ may be applied in open or slow-moving, quiescent waters as a curative measure, i.e., when mollusks (veliger, juvenile or adult) have been detected. Apply near the water surface and allow to disperse, or 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 lake or body of water at one 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.

To control adult and juvenile mollusks, apply 2 to 16 gallons of EarthTec QZ per million gallons of water (0.65 to 5.5 gallons EarthTec QZ per acre-foot) to yield a rate of 0.12 to 1.0 ppm metallic copper. Do not exceed 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) in any single application or in the treated water. Allow at least 4 days for mortality to occur. Colder water temperatures may require longer exposures and higher labeled rates.

**Maintenance Treatments:** For treatments to whole water bodies, administer copper at a rate of up to 1 ppm ( 2.74 lbs. metallic copper per acre foot) as a maximum annual rate of 21.9 lbs. metallic copper. Monitor the copper concentration and when it falls below the desired concentration, apply additional copper to bring the concentration back up to the desired concentration. Monitor mollusk populations and terminate the additional applications once mollusks are dead or 14 days have passed since the initial application. Applicators must wait at least 14 days before beginning retreatment.

Effective control can also be achieved by longer exposures (e.g., 5-30 days) at lower doses (1 to 5 ppm EarthTec QZ, to yield a rate of 0.06 to 0.30 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 ppm metallic copper in the treated water.

\*Water Destined to Be Used as Drinking Water (this water must receive additional and separate potable water treatment)

**Restrictions:**

- Do not apply more than 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) per application.
- When treating an entire waterbody, do not apply more than 44.5 gallons EarthTec QZ (21.9 lbs. metallic copper) per acre-foot per year (8 applications per year at up to 1 ppm). This rate/frequency is calculated based on staggering the treatment of each half of the water body every 14 days (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) for eight months (244 days).
- When treating sections of a waterbody, do not apply more than 94 gallons EarthTec QZ (46.6 lbs. metallic copper) per acre-foot (16.7 ppm metallic copper) per year (17 applications per year at up to 1 ppm). This rate/frequency is calculated based on the maximum number of possible applications allowed based on a 14-day minimum (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) retreatment interval for eight months (244 days). Do not apply more than 46.6 lbs. of metallic copper to a water management unit, regardless of the pest(s) targeted by applications.



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

Acres	Depth (ft)	Acre-Ft to Treat	Million Gallons to Treat	Desired ppm, EarthTec QZ	Desired ppm, as copper	EarthTec QZ Dose Rate (gals)	Desired ppm, EarthTec QZ	Desired ppm, as copper	EarthTec QZ Dose Rate (gals)
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
10	3	30	10	1.0	0.06	10	2.0	0.12	20
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	3000	1000	1.0	0.06	1000	2.0	0.12	2000

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

Acres	Depth (ft)	Acre-Ft to Treat	Million Gallons to Treat	Desired ppm, EarthTec QZ	Desired ppm, as copper	EarthTec QZ Dose Rate (gals)	Desired ppm, EarthTec QZ	Desired ppm, as copper	EarthTec QZ Dose Rate (gals)
0.5	3	1.5	0.5	4.0	0.240	2	10.0	0.600	5
1	3	3.0	1.0	4.0	0.240	4	10.0	0.600	10
10	3	30	10	4.0	0.240	40	10.0	0.600	100
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	1000
1000	3	3000	1000	4.0	0.240	4000	10.0	0.600	10,000

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

Acres	Depth (ft)	Acre-Ft to Treat	Million Gallons to Treat	Desired ppm, EarthTec QZ	Desired ppm, as copper	EarthTec QZ Dose Rate (gals)
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
10	3	30	10	16.7	1.0	167
20	3	60	20	16.7	1.0	335
100	3	300	100	16.7	1.0	1673
1000	3	3000	1000	16.7	1.0	16,733

**FOR USE IN FLOWING WATERS**

**In Potable Water Supplies\*, Canals, Ditches, Aqueducts, and equipment/structures to include pipes, intake structures, gatehouses, screens, pumping stations, weirs, tanks, and penstocks that deliver treated water directly to publicly owned-water treatment facilities.**

Apply EarthTec QZ in flowing waters when mollusks (veliger, juvenile, or adult) have been detected. EarthTec QZ 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 QZ may be used continuously on flowing waters as a means of preventing further spread and colonization of mollusks. Start the continuous application of EarthTec QZ when mollusks are detected and end application when mollusks are no longer present.

For flowing waters use a metering pump to apply a continuous dose to achieve a final dilution not to exceed 1.0 ppm as metallic copper (16.7 gallons of EarthTec QZ) per million gallons of water. Start with 1 to 4 gallons of EarthTec QZ per million gallons of water (0.06 to 0.24 ppm metallic copper) and increase as necessary. Start treatment at the first sign of algae problems and stop treatment when algae no longer pose a nuisance.

If adult mollusks are already present, allow at least 4 days for mortality to occur, or longer for 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 QZ (i.e., 0.06 to 0.30 ppm metallic copper). Colder water temperatures may require longer exposure and higher labeled rates. Once the initial infestation has been cleared from surfaces, a continuous maintenance dose of 0.6 to 2.0 ppm EarthTec QZ (0.036 to 0.12 ppm metallic copper) can be used to prevent further colonization.

\*Water Destined to Be Used as Drinking Water (this water must receive additional and separate potable water treatment)

**Restrictions:**

- Do not exceed 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) in the flowing water.

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

CFS	GAL/MIN	MGD	Desired ppm, EarthTec QZ	Desired ppm, as copper	EarthTec QZ Feed Rate (fluid oz/min)	EarthTec QZ Feed Rate (ml/min)	Desired ppm, EarthTec QZ	Desired ppm, as copper	EarthTec QZ Feed Rate (fluid oz/min)	EarthTec QZ Feed Rate (ml/min)
1	449	0.65	1.0	0.06	0.06	1.70	2.0	0.12	0.11	3.40
5	2244	3.2	1.0	0.06	0.29	8.49	2.0	0.12	0.57	17.0
10	4488	6.5	1.0	0.06	0.57	17.0	2.0	0.12	1.15	34.0
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
1000	448,830	646	1.0	0.06	57	1699	2.0	0.12	115	3398

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

CFS	GAL/MIN	MGD	Desired ppm, EarthTec QZ	Desired ppm, as copper	EarthTec QZ Feed Rate (fluid oz/min)	EarthTec QZ Feed Rate (ml/min)	Desired ppm, EarthTec QZ	Desired ppm, as copper	EarthTec QZ Feed Rate (fluid oz/min)	EarthTec QZ Feed Rate (ml/min)
1	449	0.65	5.0	0.30	0.29	8.49	16.0	0.96	0.92	27.2
5	2244	3.2	5.0	0.30	1.44	42.5	16.0	0.96	4.60	136
10	4488	6.5	5.0	0.30	2.87	84.9	16.0	0.96	9.19	272
50	22,442	32	5.0	0.30	14.4	425	16.0	0.96	46.0	1359
100	44,883	65	5.0	0.30	28.7	849	16.0	0.96	91.9	2718
1000	448,830	646	5.0	0.30	287	8494	16.0	0.96	919	27,180

MGD = Million Gallons per Day  
CFS = Cubic Feet per Second

## 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. Always store 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.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of excess 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.

**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.

**Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use for disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**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. If recycling is not available, puncture and dispose of in a sanitary landfill, or by incineration.

**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.



# EARTHTEC<sup>®</sup> QZ

## Algaecide/Nonpublic Health Bactericide/Molluscicide

For Control of Algae, Nonpublic Health Bacteria, Aquatic Weeds, Mollusks, Leeches and Snails  
Molluscicide For Control of Mollusk Pests including Quagga and Zebra Mussels

### 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 lbs. 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 label booklet for First Aid, Precautionary Statements, Directions for Use, and Storage and Disposal.**



Certified to  
NSF/ANSI/CAN 60

#### MANUFACTURED BY:

Earth Science Laboratories, Inc.  
903 N. 47th Street, Suite 105  
Rogers, AR 72756  
Phone: 800-257-9283

#### NET CONTENTS:

- 25 GALLONS  
 30 GALLONS  
 55 GALLONS  
 275 GALLONS

EPA REGISTRATION NO.: 64962-1

EPA Establishment No.: 64962-NE-001  
Batch No.:

## FIRST AID

<b>IF IN EYES:</b>	Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
<b>IF SWALLOWED:</b>	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.
<b>IF ON SKIN OR CLOTHING:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
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. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

#### Personal Protective Equipment (PPE)

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

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material such as polyvinyl chloride  $\geq$  14 mls, polyethylene or Viton  $\geq$  14 mls
- Protective eyewear (goggles, face shield, or safety glasses)

#### 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.

## ENGINEERING CONTROLS

Pilots must use an enclosed cab that meets the definition listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.305).

## **USER SAFETY RECOMMENDATIONS**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- 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.

**Fish Advisory Statement:** This copper product is toxic to fish and aquatic organisms. Unlike most organic pesticides, copper is an element and will not break down in the environment and will therefore accumulate in sediment with repeated applications. Copper is a micronutrient, but its pesticidal application rate exceeds the amount of copper needed as a nutrient.

## **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.

## **AGRICULTURAL USE REQUIREMENTS**

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 is: coveralls, protective eyewear, chemical resistant gloves (i.e., gloves made of any waterproof material) and shoes plus socks.

## **NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are not within the scope of the Worker Protection Standard for agricultural pesticides 40 CFR part 170. The WPS applies when this product is used to produce plants on farms, forests, nurseries, or greenhouses.

Do not allow re-entry into treated areas until sprays have dried.

## **RESISTANCE MANAGEMENT**

### **BACTERICIDE USE**

For resistance management, EarthTec QZ contains a Group (Not Classified) bactericide. Any bacterial population may contain individuals naturally resistant to EarthTec QZ and other Group (Not Classified) bactericides. A gradual or total loss of pest control may occur over time if these fungicides/bactericides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

To delay bactericide resistance, take one or more of the following steps:

- Rotate the use of EarthTec QZ or other Group (Not Classified) bactericides within a growing season sequence with different groups that control the same pathogens.
- Use tank mixtures with bactericides from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for bactericide use that includes scouting, uses historical information related to pesticide use, and crop rotation, and which considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological, and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time bactericide applications. Note that using predictive models alone is not sufficient to manage resistance.
- Monitor treated bacterial populations for resistance development.
- Contact your local extension specialist or certified crop advisor for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information or to report suspected resistance contact Earth Science Laboratories, Inc. at 800-257-9283. You can also contact your pesticide distributor or university extension specialist to report resistance.

## **AQUATIC USE**

Water bodies or management units should be scouted prior to application to identify the weed species present and their growth stage to determine if the intended application will be effective. Water bodies or management units should be scouted after application to verify that the treatment was effective.

Suspected herbicide-resistant weeds may be identified by these indicators:

- Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
- A spreading patch of non-controlled plants of a particular weed species; and
- Surviving plants mixed with controlled individuals of the same species.

Report any incidence of non-performance of this product against a particular weed species to Earth Science Laboratories, Inc., their representative or call 800-257-9283. If resistance is suspected, treat weed escapes with an herbicide having a different mechanism of action and/or use non-chemical means to remove escapes, as practical, with the goal of preventing further reproduction.

Implement the Early Detection, Rapid Response practice and Maintenance Control by using the following practices where possible:

- Identify weeds present in a management unit through scouting or history of the water body and understand the biology of target species.
- Applications should target weeds when populations are small and there is low biomass, early in the season to maximize efficacy.
- Applications should be made so that the herbicide contacts the weed. Use the appropriate application method for the use site/weed/chemical combination.
- Weed escapes should not be allowed to go to seed or produce asexual vegetative propagules.



- Use a diversified approach toward weed management. Whenever possible incorporate multiple weed-control practices such as mechanical control, biological management practices, and rotation of MOAs.
- Time applications to have the highest probability for control and minimize need for follow-up control measures. Apply during conditions that minimize herbicide degradation (light/temperature/microbes) and/or dissipation (water exchange).

Contact your local sales representative, local water management agency, or extension agent to find out if suspected resistant weeds to this MOA have been found in your region. If resistant biotypes of target weeds have been reported, use the application rates of this product specified for your local conditions. Tank mix products so that there are multiple effective mechanisms of actions for each target weed.

## **SPRAY DRIFT**

### **Aerial Applications:**

- Do not release spray at a height greater than 10 ft. above the vegetative canopy or water, unless a greater application height is necessary for pilot safety.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speed exceeds 15 mph at the application site. If the windspeed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.
- Applicators must use ½ swath displacement upwind at the downwind edge of the application area.
- Do not apply during temperature inversions.

### **Ground Boom Application:**

- Apply with the spray release height recommended by the manufacturer, but no more than 4 feet above the ground or crop canopy.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- Do not apply during temperature inversions.

## **SPRAY DRIFT ADVISORIES**

**THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.**

### **IMPORTANCE OF DROPLET SIZE**

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

### **Controlling Droplet Size - Ground Boom**

- Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

### **Controlling Droplet Size - Aircraft**

- **Adjust Nozzles** - Follow nozzle manufacturers recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

### **BOOM HEIGHT - Ground Boom**

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, the boom should remain level with the crop and have minimal bounce.

### **RELEASE HEIGHT - Aircraft**

Higher release heights increase the potential for spray drift. When applying aerially to crops, do not release spray at a height greater than 10 ft. above the crop canopy, unless a greater application height is necessary for pilot safety.

### **SHIELDED SPRAYERS**

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

### **TEMPERATURE AND HUMIDITY**

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

### **TEMPERATURE INVERSIONS**

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

### **WIND**

Drift potential generally increases with wind speed. **AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.**

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

## **AQUATIC USE PRECAUTION**

(excluding fountains and aquatic agriculture)

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 biomass. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, do not treat more than 1/2 of the water body and wait at least 14 days between treatments to avoid depletion of oxygen due to decaying vegetation (excluding water infrastructure and constructed conveyances such as drainage and irrigation canals, ditches and pipelines and aqueducts for drinking water or irrigation use). 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.

Application of algacides to high density blooms of cyanobacteria can result in the release of intracellular contents into the water. Some of these intracellular compounds are known mammalian hepato- and nervous system toxins. Therefore, to minimize the risk of toxin leakage, manage cyanobacteria effectively in order to avoid applying this product when blooms of toxin-producing cyanobacteria are present at high density. In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper at intervals shorter than 14 days should the circumstance demand.

Certain water conditions including low pH ( $\leq 6.5$ ), 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 pH values  $> 6.5$ , DOC levels  $> 3.0$  mg/L, and alkalinity greater than 50 mg/L. Avoid treating waters with pH values  $< 6.5$ , DOC levels  $< 3.0$ , and alkalinity less than 50 ppm (e.g., soft or acid waters), as trout and other sensitive species of fish may be killed under such conditions if present.

Consult your state department of natural resources or fish and game agency before applying this product to public waters. Permits may be required before treating such waters.

### **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 QZ. Always rinse and clean equipment thoroughly each night with plenty of fresh, clean water.

### **PRODUCT INFORMATION**

EarthTec QZ is an algacide, nonpublic health bactericide and molluscicide consisting of a soluble formulation of copper. EarthTec QZ's proprietary formulation ensures that the active ingredient - metallic copper - is delivered in the form of the biologically available cupric ion,  $\text{Cu}^{++}$ . EarthTec QZ is soluble and will quickly disperse.

EarthTec QZ 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 or nonpublic health bacteria, or affected by physical properties.

### **APPLICATION INSTRUCTIONS**

EarthTec QZ may be applied throughout the year. For algae control, apply in the late spring or early summer 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. Preferably, the water should be clear with temperature above 60 degrees F (15.6 degrees C). Higher doses may be required for lower water temperatures, higher algae concentrations, and for hard waters. See **Specific Directions for Use** section.

Apply EarthTec QZ through metering pump, subsurface hoses or from a properly equipped moving boat into the body of water. For best results disperse EarthTec QZ evenly throughout the body of water on a sunny day when algae are near the surface. EarthTec QZ is soluble and will quickly disperse.

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**.

EarthTec QZ may be poured directly into ponds, small lakes, and reservoirs 3 acres or less in area. For larger bodies of water, of 3 acres or more, apply EarthTec QZ at several points in the ponds, lakes, or reservoirs. Larger bodies of water may be treated with EarthTec QZ 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 QZ 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 QZ may be applied to irrigation systems by a drip system or feeder pump according to the flow volume.

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.

#### **Pre-Application Dose Determination**

For algae and aquatic plant treatments, applicators should conduct initial dose determination tests simulating a full-scale treatment program to determine the minimum efficacious concentrations for eliminating the target species, unless an effective dose is already known for the given target pest population.

## USE RATES

### Direct Applications to Whole Water Bodies

Apply 0.33 to 1.3 gallons EarthTec QZ (0.06 to 0.24 ppm metallic copper) (1 to 4 gallons EarthTec QZ per million gallons water) per acre-foot per application. Increase as necessary to achieve control but do not exceed 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) in the treated water. If algae are present, use the higher labeled rate. Do not apply to more than one-half of the water body at a time. Stagger treatments at 14-day intervals. See **Specific Directions for Use** section for additional treatment instructions.

#### Restrictions:

- Do not apply more than 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) per application.
- Do not apply more than 44.5 gallons EarthTec QZ (21.9 lbs. metallic copper) per acre-foot per year (8 applications per year at up to 1 ppm). This rate/frequency is calculated based on staggering the treatment of each half of the water body every 14 days (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) for eight months (244 days).

### Direct Application to Sections of a Waterbody (Water Management Units)

Apply 0.33 to 1.3 gallons EarthTec QZ (0.06 to 0.24 ppm metallic copper) per acre-foot per application. Increase as necessary to achieve control but do not exceed 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) in the treated water. Applicators must wait at least 14 days before beginning retreatment. See **Specific Directions for Use** section for additional treatment instructions.

#### Restrictions:

- Do not apply more than 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) per application.
- Do not apply more than 94 gallons EarthTec QZ (46.6 lbs. metallic copper) per acre-foot (16.7 ppm metallic copper) per year (17 applications per year at up to 1 ppm). This rate/frequency is calculated based on the maximum number of possible applications allowed based on a 14-day minimum (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) retreatment interval for eight months (244 days). Do not apply more than 46.6 lbs. of metallic copper to a water management unit, regardless of the pest(s) targeted by applications.

**Note:** In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper in excess of 46.6 lbs. of metallic copper per acre-foot per year for a single water management unit.

GALLONS OF EARTHTEC QZ AND WATER

Gallons EarthTec QZ	Gallons Water	Metallic Copper (ppm)
0.1 (0.4 quart or 0.8 pint)	6,000	1.0
0.25 (1 quart)	15,000	1.0
1	60,000	1.0
1.66	100,000	1.0
2.50	150,000	1.0
3.33	200,000	1.0
8.33	500,000	1.0
16.66	1,000,000	1.0

**Example:** To achieve 1.0 ppm of metallic copper, 1 gallon of EarthTec QZ 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 QZ added to a water body is equal to the gallons of water being treated divided by 60,000 multiplied by 1 (see above). Use volumetric measurement devices that are calibrated in accordance with manufacturer specifications.

Use the following formulas for calculating water volume and flow rates:

- To calculate the volume of water, multiply the average depth by surface area. One acre foot equals 326,000 gallons.
- 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.

See **Specific Directions for Use** section for additional treatment instructions.

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**. For use in controlling algae and cyanobacteria at all aquatic application sites do not exceed a concentration 1.0 ppm (equivalent to 16.7 ppm EarthTec QZ) of metallic copper in the treated water.

#### **For Use in Flowing Waters**

For flowing waters use a metering pump to apply a continuous dose to achieve a final dilution not to exceed 1.0 ppm as metallic copper (16.7 gallons of EarthTec QZ) per million gallons of water. Start with 1 to 4 gallons of EarthTec QZ per million gallons of water (0.06 to 0.24 ppm metallic copper) and increase as necessary. A continuous maintenance dose of 0.6 to 2.0 gallons of EarthTec QZ per million gallons water (0.036 to 0.12 ppm metallic copper) 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. See **Specific Directions for Use** section for additional treatment instructions.

### **SPECIFIC DIRECTIONS FOR USE**

#### **TO CONTROL ALGAE, NONPUBLIC HEALTH BACTERIA AND BACTERIA THAT CAUSE TASTE AND ODOR PROBLEMS**

**For Use in Irrigation Reservoirs, Impounded Waters, Lakes, Ponds, Lagoons, Reservoirs, Livestock Water Systems, Swimming Areas, Farm, Industrial, Retention and Golf Course Ponds, Aquaculture Ponds, Biological Fishponds or Systems, Potable Water Supplies\*, Irrigation and Chemigation Systems, Sedimentation Basins, and Ornamental Water Features or Fountains.**

For fish-bearing lakes, ponds, reservoirs, irrigation canals and other listed applications, apply at the rate of 1 quart of EarthTec QZ per 250,000 gallons of water, or 1 gallon of EarthTec QZ 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 ppm of metallic copper in the treated water. If algae are present, treat at the rate of 3 quarts of EarthTec QZ per 250,000 gallons of water, or 3 gallons of EarthTec QZ 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 QZ per 15,000 gallons of water, or 1 gallon of EarthTec QZ per 60,000 gallons of water. This will yield a rate of 1.0 ppm metallic copper.

EarthTec QZ may be poured into the water manually after calculating the volume of water to be treated and measuring the quantity EarthTec QZ 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 QZ evenly throughout the body of water on a sunny day when algae are near the surface.

In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper in excess of 44.5 gallons EarthTec QZ (21.9 lbs. of metallic copper) per acre-foot per year (8 applications per year at up to 1 ppm).

\*Water Destined to Be Used as Drinking Water (this water must receive additional and separate potable water treatment)

### Restrictions:

- Do not apply more than 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) per application.
- When treating the whole water body, do not apply more than 44.5 gallons EarthTec QZ (21.9 lbs. metallic copper) per acre-foot per year (8 applications per year at up to 1 ppm). This rate/frequency is calculated based on staggering the treatment of each half of the water body every 14 days (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) for eight months (244 days).
- When treating sections of the water body (water management units) do not apply more than 94 gallons EarthTec QZ (46.6 lbs. metallic copper) per acre-foot (16.7 ppm metallic copper) per year (17 applications per year at up to 1 ppm). This rate/frequency is calculated based on the maximum number of possible applications allowed based on a 14-day minimum (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) retreatment interval for eight months (244 days). Do not apply more than 46.6 lbs. of metallic copper to a water management unit, regardless of the pest(s) targeted by applications.

### **For Use in 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, gatehouses, screens, pumping stations, weirs, tanks, and penstocks**

In flowing waters, make application using a metering pump to apply a continuous dose to achieve a final dilution not to exceed 5.5 gallons EarthTec QZ (1.0 ppm metallic copper) per acre-foot (16.7 ppm EarthTec QZ). Start with 1 to 4 ppm EarthTec QZ (0.06 to 0.24 ppm metallic copper) and increase only as necessary. A continuous maintenance dose of 0.6 to 2.0 ppm EarthTec QZ (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.

\*Water Destined to Be Used as Drinking Water (this water must receive additional and separate potable water treatment)

### **For Use 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 QZ 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 QZ 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. See **Example Calculation** table below for continuous flow rates. If algae are present, do not exceed the total dose of 1 gallon of EarthTec QZ in 60,000 gallons of water (1.0 ppm metallic copper).

### **For Use in Constructed Irrigation Conveyance Systems, Laterals and Aqueducts**

Apply into irrigation conveyance systems or laterals at up to a maximum rate of 1 gallon EarthTec QZ (0.5 lbs. metallic copper) per cubic foot per second of water per 5 to 30-mile treatment depending on water hardness, alkalinity, and algae concentration. Do not apply more than 26 gallons of EarthTec QZ (13 lbs. metallic copper) per year per 5 miles of conveyance per cubic foot per second (CFS).

### **For Use in Sprinkler, Drip, or Other Types of Irrigation Equipment**

To prevent growth of algae, nonpublic health bacteria, and bacteria that cause odor problems, treat at a rate of 1 gallon EarthTec QZ per 60,000 gallons of water to 1 gallon EarthTec QZ per 1,000,000 gallons of water. This will yield a rate of 1.0 ppm to 0.06 ppm metallic copper. Agitation is not required. Do not mix with basic substances. EarthTec QZ must be applied continuously for the duration of the water application.

If algae are visible, start by cleaning the pipes or lines and then applying 1 gallon of EarthTec QZ 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 QZ fl oz/min	Feeder Pump Setting EarthTec QZ
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 QZ fl oz/min	Feeder Pump Setting EarthTec QZ
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	25.6	755.0

### For Use in Biological Fishponds and Aquaculture Systems

Apply 0.25 to 1.4 gallons EarthTec QZ per acre-foot (equivalent to 0.05 to 0.25 ppm metallic copper). Monitor the copper concentration and when it falls below the desired concentration, make additional applications to bring the concentration back up to the desired concentration. EarthTec QZ can be applied once daily for 5 to 11 consecutive days.

#### Restrictions:

- Do not make daily applications for more than 11 consecutive days.
- Applicators must wait at least 14 days before beginning retreatment.
- Do not apply more than 93.2 gallons EarthTec QZ (46.6 lbs. metallic copper) per acre-foot in one year.

### For Control of Leeches, Slugs and Snails

**For Use In Impounded Waters, Lakes, Ponds, Livestock Watering Systems, Reservoirs, Swimming Areas, Farm, Industrial, Retention and Golf Course Ponds, Aquaculture Ponds, Biological Fishponds or Systems, Irrigation and Chemigation Systems, Ornamental Water Features and Fountains.**

**Snails:** When snails are present apply EarthTec QZ at a rate of 2 ppm on day 1, equivalent to 0.12 ppm as copper. Reapply EarthTec QZ at the rate of 1 ppm on days 3, 5 and 7. Repeat weekly as necessary to control snails.

**Leeches and Slugs:** For effective control, apply at the rate of 2 to 16 ppm EarthTec QZ (i.e., 2 to 16 gallons of EarthTec QZ per million gallons of water) to yield a rate of 0.120 to 0.96 ppm metallic copper.

#### Restrictions:

- Do not exceed 1.0 ppm (equivalent to 16.7 ppm EarthTec QZ) metallic copper in any single application or in the treated water.

**FOR USE AS A MOLLUSCICIDE**  
**Including Quagga and Zebra Mussels**

**FOR USE IN OPEN WATERS**

**In Lakes, Ponds, Lagoons, Reservoirs, Sedimentation Basins, Canals and Ditches and Potable Water Supplies\***

EarthTec QZ may be applied in open or slow-moving, quiescent waters as a curative measure, i.e., when mollusks (veliger, juvenile or adult) have been detected. Apply near the water surface and allow to disperse, or 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 lake or body of water at one 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.

To control adult and juvenile mollusks, apply 2 to 16 gallons of EarthTec QZ per million gallons of water (0.65 to 5.5 gallons EarthTec QZ per acre-foot) to yield a rate of 0.12 to 1.0 ppm metallic copper. Do not exceed 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) in any single application or in the treated water. Allow at least 4 days for mortality to occur. Colder water temperatures may require longer exposures and higher labeled rates.

**Maintenance Treatments:** For treatments to whole water bodies, administer copper at a rate of up to 1 ppm ( 2.74 lbs. metallic copper per acre foot) as a maximum annual rate of 21.9 lbs. metallic copper. Monitor the copper concentration and when it falls below the desired concentration, apply additional copper to bring the concentration back up to the desired concentration. Monitor mollusk populations and terminate the additional applications once mollusks are dead or 14 days have passed since the initial application. Applicators must wait at least 14 days before beginning retreatment.

Effective control can also be achieved by longer exposures (e.g., 5-30 days) at lower doses (1 to 5 ppm EarthTec QZ, to yield a rate of 0.06 to 0.30 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 ppm metallic copper in the treated water.

\*Water Destined to Be Used as Drinking Water (this water must receive additional and separate potable water treatment)

**Restrictions:**

- Do not apply more than 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) per application.
- When treating an entire waterbody, do not apply more than 44.5 gallons EarthTec QZ (21.9 lbs. metallic copper) per acre-foot per year (8 applications per year at up to 1 ppm). This rate/frequency is calculated based on staggering the treatment of each half of the water body every 14 days (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) for eight months (244 days).
- When treating sections of a waterbody, do not apply more than 94 gallons EarthTec QZ (46.6 lbs. metallic copper) per acre-foot (16.7 ppm metallic copper) per year (17 applications per year at up to 1 ppm). This rate/frequency is calculated based on the maximum number of possible applications allowed based on a 14-day minimum (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) retreatment interval for eight months (244 days). Do not apply more than 46.6 lbs. of metallic copper to a water management unit, regardless of the pest(s) targeted by applications.



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

Acres	Depth (ft)	Acre-Ft to Treat	Million Gallons to Treat	Desired ppm, Earthtec QZ	Desired ppm, as copper	Earthtec QZ Dose Rate (gals)	Desired ppm, Earthtec QZ	Desired ppm, as copper	Earthtec QZ Dose Rate (gals)
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
10	3	30	10	1.0	0.06	10	2.0	0.12	20
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	3000	1000	1.0	0.06	1000	2.0	0.12	2000

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

Acres	Depth (ft)	Acre-Ft to Treat	Million Gallons to Treat	Desired ppm, Earthtec QZ	Desired ppm, as copper	Earthtec QZ Dose Rate (gals)	Desired ppm, Earthtec QZ	Desired ppm, as copper	Earthtec QZ Dose Rate (gals)
0.5	3	1.5	0.5	4.0	0.240	2	10.0	0.600	5
1	3	3.0	1.0	4.0	0.240	4	10.0	0.600	10
10	3	30	10	4.0	0.240	40	10.0	0.600	100
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	1000
1000	3	3000	1000	4.0	0.240	4000	10.0	0.600	10,000

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

Acres	Depth (ft)	Acre-Ft to Treat	Million Gallons to Treat	Desired ppm, Earthtec QZ	Desired ppm, as copper	Earthtec QZ Dose Rate (gals)
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
10	3	30	10	16.7	1.0	167
20	3	60	20	16.7	1.0	335
100	3	300	100	16.7	1.0	1673
1000	3	3000	1000	16.7	1.0	16,733

**FOR USE IN FLOWING WATERS**

**In Potable Water Supplies\*, Canals, Ditches, Aqueducts, and equipment/structures to include pipes, intake structures, gatehouses, screens, pumping stations, weirs, tanks, and penstocks that deliver treated water directly to publicly owned-water treatment facilities.**

Apply EarthTec QZ in flowing waters when mollusks (veliger, juvenile, or adult) have been detected. EarthTec QZ 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 QZ may be used continuously on flowing waters as a means of preventing further spread and colonization of mollusks. Start the continuous application of EarthTec QZ when mollusks are detected and end application when mollusks are no longer present.

For flowing waters use a metering pump to apply a continuous dose to achieve a final dilution not to exceed 1.0 ppm as metallic copper (16.7 gallons of EarthTec QZ) per million gallons of water. Start with 1 to 4 gallons of EarthTec QZ per million gallons of water 0.06 to 0.24 ppm metallic copper) and increase as necessary. Start treatment at the first sign of algae problems and stop treatment when algae no longer pose a nuisance.

If adult mollusks are already present, allow at least 4 days for mortality to occur, or longer for 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 QZ (i.e., 0.06 to 0.30 ppm metallic copper). Colder water temperatures may require longer exposure and higher labeled rates. Once the initial infestation has been cleared from surfaces, a continuous maintenance dose of 0.6 to 2.0 ppm EarthTec QZ (0.036 to 0.12 ppm metallic copper) can be used to prevent further colonization.

\*Water Destined to Be Used as Drinking Water (this water must receive additional and separate potable water treatment)

#### Restrictions:

- Do not exceed 5.5 gallons EarthTec QZ (2.74 lbs. metallic copper) per acre-foot (1.0 ppm metallic copper) (16.7 ppm EarthTec QZ) in the flowing water.

Example Dose Rates for EarthTec QZ in Flowing Waters (LOW DOSE)										
CFS	GAL/MIN	MGD	Desired ppm, EarthTec QZ	Desired ppm, as copper	EarthTec QZ Feed Rate (fluid oz/min)	EarthTec QZ Feed Rate (ml/min)	Desired ppm, EarthTec QZ	Desired ppm, as copper	EarthTec QZ Feed Rate (fluid oz/min)	EarthTec QZ Feed Rate (ml/min)
1	449	0.65	1.0	0.06	0.06	1.70	2.0	0.12	0.11	3.40
5	2244	3.2	1.0	0.06	0.29	8.49	2.0	0.12	0.57	17.0
10	4488	6.5	1.0	0.06	0.57	17.0	2.0	0.12	1.15	34.0
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
1000	448,830	646	1.0	0.06	57	1699	2.0	0.12	115	3398

Example Dose Rates for EarthTec QZ in Flowing Waters (MEDIUM AND HIGH DOSES)										
CFS	GAL/MIN	MGD	Desired ppm, EarthTec QZ	Desired ppm, as copper	EarthTec QZ Feed Rate (fluid oz/min)	EarthTec QZ Feed Rate (ml/min)	Desired ppm, EarthTec QZ	Desired ppm, as copper	EarthTec QZ Feed Rate (fluid oz/min)	EarthTec QZ Feed Rate (ml/min)
1	449	0.65	5.0	0.30	0.29	8.49	16.0	0.96	0.92	27.2
5	2244	3.2	5.0	0.30	1.44	42.5	16.0	0.96	4.60	136
10	4488	6.5	5.0	0.30	2.87	84.9	16.0	0.96	9.19	272
50	22,442	32	5.0	0.30	14.4	425	16.0	0.96	46.0	1359
100	44,883	65	5.0	0.30	28.7	849	16.0	0.96	91.9	2718
1000	448,830	646	5.0	0.30	287	8494	16.0	0.96	919	27180

MGD = Million Gallons per Day

CFS = Cubic Feet per Second

## 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. Always store 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.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of excess 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.

**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.

**Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use for disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**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. If recycling is not available, puncture and dispose of in a sanitary landfill, or by incineration.

**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.

# EARTHTEC QZ

## Algaecide/Nonpublic Health Bactericide/Molluscicide

For Control of Algae, Nonpublic Health Bacteria, Aquatic Weeds, Mollusks, Leeches and Snails  
Molluscicide For Control of Mollusk Pests including Quagga and Zebra Mussels

### ACTIVE INGREDIENT

Copper Sulfate Pentahydrate\*(CAS No. 7758-998).....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 label booklet for additional Precautionary Statements,  
Directions for Use, and Storage and Disposal.

### FIRST AID

**IF IN EYES:** Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses if present, after the 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 to 20 minutes. Call a poison control center or doctor for treatment advice.

**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. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

COPPER

GROUP

Not Classified

HERBICIDE

### ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and aquatic invertebrates. Waters treated with this product may be hazardous to aquatic organisms.

**FISH ADVISORY STATEMENT:** This copper product is toxic to fish and aquatic organisms. Unlike most organic pesticides, copper is an element and will not break down in the environment and will therefore accumulate in sediment with repeated applications. Copper is a micronutrient, but its pesticidal application rate exceeds the amount of copper needed as a nutrient.

## 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. Always store 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.

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of excess 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 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 1/4 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.

**Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

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EPA REG. NO. 64962-1

EPA EST. NO. 64962-NE-001

NET CONTENTS:

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Manufactured by:  
Earth Science Laboratories, Inc.  
903 N. 47th Street, Suite 105  
Rogers, AR 72756  
Phone: (800) 257-9283

2.5 GALLONS

55 GALLONS

30 GALLONS

275 GALLONS

NSF

Certified to  
NSF/ANSI/CAN 60

BATCH NO.:

0622

PEEL BACK BOOK HERE