

ZEQUANOX™

For Biological Quagga and Zebra Mussel Control

ACTIVE INGREDIENT:

Pseudomonas fluorescens strain CL145A cells.....50.00%

OTHER INGREDIENTS:..... 50.00%

TOTAL:.....100.00%

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

FIRST AID	
If swallowed	<ul style="list-style-type: none">• Call poison control center or doctor immediately for treatment advice.• Have person drink several glasses of water.• 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	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15-20 minutes.• Call a poison control center or doctor for treatment advice.
If in eyes	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15 – 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.
HOTLINE NUMBER Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.	

EPA Reg. No.: 84059-15

EPA Est. No.: XXXXX-XX-XXX

(Batch)(Lot) No: XXXX

Net Weight: 40 pounds

Use by: (6 months after date of manufacture)

Manufactured for: Marrone Bio Innovations, Inc.
2121 Second St., Suite B-107
Davis, CA 95618 USA

Patent No. 6,194,194; Canada Patent No. 2,225,436

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS – CAUTION: Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

Mixers/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization. Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables are available, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENVIRONMENTAL HAZARDS: Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

DIRECTIONS FOR USE

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

This label must be in the possession of the user at the time of pesticide application.

Use Restrictions: Treatment of open water, such as infested ponds, lakes, reservoirs, rivers and streams, or other unconfined aquatic systems, with ZEQUANOX™ is prohibited.

Mode of Action: Zebra and quagga mussels filter the product out of water and process the active ingredient as a food source. When the zebra and quagga mussels digest the product, the active ingredient disrupts the epithelial cells lining their digestive system causing mussel mortality. Since the ZEQUANOX™ efficacy is dependent on zebra and quagga mussel feeding activity and metabolism, which is affected by such factors as water temperature and mussel breeding activity, site assessments must be conducted to ensure appropriate timing of product application.

Treatment sites for MBI-401 SDP: Apply ZEQUANOX™ to enclosed, semi-enclosed and other confined static or flowing water infrastructures infested with zebra and/or quagga mussels. Treatment area must be a completely enclosed pipe or water conveyance system or concrete chamber with a defined inlet or outlet. Application of ZEQUANOX™ assumes the full flow and volume of water through the treated pipe or water conveyance system or concrete chamber with a defined inlet or outlet. Enclosed and other confined static or flowing water infrastructures include water storage chambers and tanks, pipes, general plumbing and equipment, and other water conveyance structures associated with civil infrastructure such as the cooling water systems and contained water storage chambers of power plants, pump stations, irrigation systems, industrial and manufacturing facilities (e.g. automobile and steel), and dams.

Method of Application: Mix ZEQUANOX™ by dispensing manually or using a closed hopper system into water filled mixing tank, tote or appropriate plastic container to make concentrated

product solution for application to infested infrastructure. To mix appropriate concentrated product solution, see calculation method section below. After mixing concentrated product solution, inject the concentrated product solution from the mixing tote, tank or other appropriate plastic container using chemical metering pumps directly into a defined static or flowing system such that the volume or the volumetric flow rate, respectively, can be measured. This is similar to equipment commonly used for chemical injection in water and wastewater treatment. Application is based on volume and volumetric flow rates. For enclosed (e.g. cooling and service water lines and fire suppression systems), semi-enclosed (e.g. open channels or pipes) and defined systems (areas in which the volume and volumetric flow rate are contained via permanent or temporary barriers) treated water flow rates and chemical injection rates are measured by using equipment such as flow meters and calibration columns. For treatment of defined static systems a total amount of product is applied over a maximum of one hour to achieve a maximum concentration of 0.027 oz/gallon (200 mg/L) active ingredient. Use turbidity measurements before, during and after application as a surrogate to measure actual applied product.

Maximum Rate of Application of MBI-401 SDP: Up to 0.027 oz of active ingredient/gallon of water (200 mg of active ingredient/L of water) for up to 24 hours total per month.

Limitations on Discharge of Treated Water: Prior to treatment, site assessments must be conducted to ensure that the concentration of treated water from mussel infested infrastructure does not exceed an EEC (expected environmental concentration) of 0.013 oz of active ingredient/gallon of water (100 mg of active ingredient/L of water) in receiving waters.

Treatment Scenarios: Apply ZEQUANOX™ by any of the treatment scenarios, depending on the system, level of infestation, stage within mussel lifecycle, time of year, and sensitivity of the system to abrasion/occlusion from invasive mussels:

1) Rehabilitation Level Treatment.

Rehabilitation treatments are conducted at high concentrations to remove adult mussel infestations. A rehabilitation treatment can be followed by a settlement maintenance treatment to protect facilities sensitive to any shell debris. (The settlement maintenance treatment scenario is described in the next section below entitled, "Settlement Maintenance Treatment"). The purpose of the rehabilitation treatment is to kill and/or remove attached adult mussels from infested systems. These treatments would be at concentrations near or at the maximum rate of 0.027 oz of active ingredient/gallon of water (200 mg of active ingredient/L of water) for no more than 12 hours in a continuous 24 hour period. Cold water environments, such as the Great Lakes region, typically have only 2-3 zebra and/or quagga mussel lifecycles per year and require one rehabilitation treatment per year. Warm water environments, such as the Lower Colorado River, have up to 7 zebra and/or quagga mussel lifecycles per year. Rehabilitation level treatments are typically done once per year, but cannot occur more than twice per year.

2) Settlement Maintenance Level Treatments.

Settlement maintenance is an on-going, lower dose treatment during the mussel spawning season and prevents juvenile mussels from settling and growing to the adult stage within the system and is similar, in function, to chlorine treatments. It is performed to protect pipes and orifices that are more susceptible to damage by mussel settlement, and prevents shell debris from clogging equipment or abrasion damage to equipment. Settlement maintenance treatments cannot exceed 0.0067 oz of active ingredient/gallon of water (50 mg of active

ingredient/L of water) for up to 12 hours per treatment and can be done no more than two times per month per treatment site.

3) Veliger (Planktonic) Life Stage Treatment.

Veliger treatments are low dose treatments that are conducted during the mussel spawning season to control the swimming and floating mussel life stages within a defined static volume or flowing water. These treatments are typically preformed where infested water is being transferred from one location to another to prevent the spread of invasive mussels into non-mussel infested water. Veliger life stage treatments cannot exceed 0.0067 oz of active ingredient/gallon of water (50 mg of active ingredient/L of water) for up to 12 hours per treatment and limited to one treatment per specific volume of water transferred.

Calculation of Application Rates:

For all applications, prior to product application, dilute ZEQUANOX™ into double contained plastic mixing tank, tote, or similar container appropriate for use in chemical application in aquatic environments. Mix 2.2 lbs (or 1 kg) of dry ZEQUANOX™ into 2 to 3.5 gallons (8 to 13 liters) of non-chlorinated water in an appropriate plastic chemical application container to achieve a slurry concentration of 18 to 10 oz of MBI-401 SDP/gallon (125 to 77 g MBI-401 SDP/liter) or 9 to 5 oz of active ingredient/gallon of water (62 to 38 g of active ingredient/L of water). Mix well. Once ZEQUANOX™ is diluted, follow application instructions as described below.

Enclosed, semi-enclosed and other confined static and flowing water infrastructure

Rehabilitation Level Treatment: For adult zebra and quagga mussel control in enclosed, semi-enclosed, and defined static and flowing water in infested infrastructures (e.g. water storage chambers or tanks and pipes and any water conveyance structures, associated with civil infrastructure such as, power plants, pumping stations, industrial and manufacturing facilities irrigation and water supply systems, equipment deployed in a body of water or within civil infrastructure with a defined volume and dams), inject diluted ZEQUANOX™ contained in the appropriate chemical injection tank (container) into flowing water at a point with heavy mixing with standard chemical injection metering pump to reach a completely mixed and homogeneous suspension of up to 0.027 oz of active ingredient/gallon of water (200 mg of active ingredient/L of water). Maintain continuous injection with the chemical metering pump production for 6 to 12 hours or until up to 0.027 oz of active ingredient/gallon of water (200 mg of active ingredient/L of water) is reached in a static environment. For non-flowing, static application conditions, product should be held in the contained treatment system for the total treatment time of 12 to 18 hours. To maintain a completely mixed and dispersed concentration, use a submersible pump or other mixing unit. To achieve the maximum desired concentration, calculate the injection rate (volumetric dose) based on the total volumetric water flow rate (or volume) and diluted product concentration.

Settlement Maintenance Level Treatment: For settlement prevention control of juvenile and planktonic zebra and quagga mussel life stages (veliger life stage) in enclosed, semi-enclosed, and defined static and flowing water in infested infrastructures, e.g. water storage chambers and tanks and pipes and any water conveyance structures associated with civil infrastructure such as, irrigation and water distribution systems, power plants, pumping stations, industrial and manufacturing facilities (e.g. automobile and steel), equipment in deployed in a body of water or within civil infrastructure with a defined volume and dams, inject diluted ZEQUANOX™

contained in the appropriate chemical injection tank (container) at a location with heavy mixing with a standard chemical injection metering pump to reach a completely mixed and homogeneous suspension of up to 0.0067 oz of active ingredient/gallon of water (50 mg of active ingredient /L of water). Maintain continuous injection with the chemical metering pump production for 1 to 6 hours until up to 0.0067oz of active ingredient/gallon of water (50 mg of active ingredient/L of water) is reached in a flowing environment. For non-flowing, static, application conditions, product should be held in the contained treatment system for the total treatment time of 6 hours. To achieve the necessary concentration, calculate the injection rate (volumetric dose) based on the total volumetric water flow rate (or volume) and diluted product concentration. Repeat injection up to two times a month, dependent on viable veliger density, continuously through mussel spawning season.

Product measurement in treated system

Perform turbidity measurements to determine when the desired completely mixed homogenous concentration of ZEQUANOX™ active ingredient is achieved. In order to correlate target turbidity to desired active ingredient concentration, add the necessary volume of diluted ZEQUANOX™ to achieve the target concentration into a known volume of water contained in a plastic or glass container and mix. Read turbidity of this mixture – this is the target turbidity for desired completely mixed homogenous concentration. If turbidity concentrations exceed label or pre-notification intended use, applicator will adjust chemical metering pump or shut down application system entirely to prevent exceeding the expected environmental concentration upon discharge.

Prior to any treatment, site assessments must be conducted to ensure that the concentration of treated water from mussel infested infrastructure does not exceed an EEC (expected environmental concentration) of 0.013 oz of active ingredient/gallon of water (100 mg of active ingredient/L of water) in receiving waters.

After application, allow 2 to 4 weeks, respectively, at warm (ca. > 68°F (20°C)) to cold (ca. < 50 F (10°C)) water temperatures before determining the final mortality achieved, via biobox monitoring or similar industry practice, from each treatment.

STORAGE AND DISPOSAL

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

Pesticide Storage: Store in original container at less than 40° for up to 6 months after date of manufacture.

Pesticide Disposal: To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

Container Handling: Nonrefillable container. Do not reuse or refill this container.

(For plastic lined paper bags, all sizes -)

Completely empty bag into application equipment by shaking and tapping sides and bottom to loosen clinging particles. Then offer for recycling if available, or dispose of empty bag in a sanitary landfill or by incineration. Do not burn unless allowed by state and local ordinances.

(For 250 gallon totes -)

Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container $\frac{1}{4}$ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one 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 two more times.

WARRANTY

To the extent consistent with applicable law, the seller makes no warranty, expressed or implied, of merchantability, fitness or otherwise concerning use of this product. To the extent consistent with applicable law, the user assumes all risks of use, storage or handling that are not in strict accordance with the accompanying directions.