



WATER & WETLAND
— LAKE, POND & WETLAND MANAGEMENT —

NOTICE OF INTENT APPLICATION



Proposed Implementation of an Aquatic Management Program

**Cocasset Lake
Foxborough, MA**

**Prepared For: Cocasset Lake Association
18 Woodland Road, Foxborough, MA 02035**

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February 10, 2022

BY ELECTRONIC MAIL AND CERTIFIED MAIL

Foxborough Conservation Commission
40 South Street
Foxborough, MA 02035

Attn: Ms. Jane Sears Pierce, Conservation Agent
Phone: (508) 543-1251
Email: JPierce@foxboroughma.gov

RE: Notice of Intent (NOI) application for the initiation of an Aquatic Management Program at Cocasset Lake, Foxborough, MA

Cocasset Lake Association
18 Woodland Road, Foxborough, MA 02035

Dear Ms. Pierce and Conservation Commission Members:

Water & Wetland, LLC has prepared the following Notice of Intent (NOI) Application to meet the requirements of the Massachusetts Wetlands Protection Act (MGL Ch. 131 Sec. 40) and its Regulations (310 CMR 10.00, et seq) (the "Act"); and the Town of Foxborough Wetlands Protection Bylaw, and related regulations. We were authorized to prepare this filing at the request of Cocasset Lake Association, the "Applicant" for the project located at Cocasset Lake in the town of Foxborough, Massachusetts. The Applicant is seeking approval to initiate/continue an Aquatic Management Program at Cocasset Lake (See Figure 1). The proposed project has been filed as an Ecological Restoration Limited Project under 310 CMR 10.53(4) and will protect the interest of the Wetlands Protection Act by controlling non-native, nuisance species, improving fish habitat, improving water quality, and slowing pond eutrophication.

Pond/Site Description

Cocasset Lake is located in Foxborough, Massachusetts. The Lake is approximately 32 – surface acres and has an estimated average depth of 7 feet and a maximum depth of approximately 12 feet. The Lake is owned and managed by Cocasset Lake Association, which was formed in 1940 with the goal of preserving and improving Cocasset Lake. The perimeter of the pond contains several dozen homes and Rock Hill Cemetery contains a large amount of frontage



Figure 1 Cocasset Lake

on the eastern shoreline. Water flows into Cocasset Lake from Sunset Lake to the North as well as from a stream fed by Lakeview Pond. At the southern end, Cocasset Lake contains a man-made dam. The Lake was reportedly dammed/created in 1813. Once water leaves Cocasset Lake, it enters Foundry Pond off South Street and eventually merges with Wading River, which flows out of Lake Mirimichi.

Problem Statement / History

Cocasset Lake has a lengthy history of management activities, which to the best of our knowledge dates to the mid 1970's and potentially even earlier. At this time, Cocasset Lake Association contracted with Lycott Environmental, Inc. to survey the Lake and develop a management plan. The survey documented invasive variable watermilfoil (*Myriophyllum heterophyllum*). According to information from Lycott in 2010, an alternatives analysis was conducted in the mid 1970's and determined treatment of invasive and nuisance species utilizing EPA/MA approved herbicides and algaecides was the most appropriate management technique. The Lycott letter from 2010 also notes that they had managed the variable watermilfoil as well as nuisance native plants such as waterlilies (*Nymphaea*), watershield (*Brasenia*), and bladderwort (*Utricularia*). The program during this lengthy stretch of years included filing of the annually required MA-DEP permit, pre-treatment survey, shoreline posting, treatment in June, and a follow-up survey later in the season. In their 2010 letter, Lycott noted that no negative impacts to aquatic organisms such as fish and wildlife were observed during this 35 year stretch from 1975 to 2010. Treatments conducted by Lycott continued until 2015 when Lycott became Aquatic Control Technology. During this five-year period, dialogue occurred between Foxborough Conservation Commission, Lycott, and Cocasset Lake Association regarding treatment of nuisance native species such as waterlilies and bladderwort.

SOLitude Lake Management absorbed Aquatic Control Technology and notified Conservation of the new management company on March 3, 2017. During the public hearing on June 19, 2017, the Commission granted another Order of Conditions extension, but the extension did not allow for treatment of the two target native species, bladderwort and waterlilies. Since 2017, little history is available, but we do know that invasive fanwort (*Cabomba caroliniana*) was discovered at some point around 2017. Contact herbicides continued to be used targeting both milfoil and fanwort for the last several years leading up to a 2020 Order of Conditions extension request. During the Conservation Commission public hearing on June 1, 2020, the Foxborough Conservation Commission entertained this request for a three-year Order of Conditions extension. The meeting minutes from June 1st note that the commission would like Cocasset Lake Association to file a new Notice of Intent due to the age of the original Order. The motion to deny this extension request unanimously passed.

In June of 2021, Water & Wetland, LLC was contacted by Cocasset Lake Association with the request to manage the invasive species within the Lake. Immediately upon being contacted, Water & Wetland requested a copy of the Order of Conditions and placed an exploratory phone call to Ms. Pierce, Foxborough Conservation Agent. A discussion was had revolving around the recently enacted permit tolling. On March 10, 2020, Governor Baker, acting pursuant to the powers provided by Chapter 639 of the Acts of 1950 and Section 2A of Chapter 17 of the General Laws, declared a state of emergency due to the outbreak of COVID-19. Following the declaration of the state of emergency, the Governor issued a number of orders intended to prevent the spread of COVID-19 and minimize the economic disruption caused by the pandemic, including COVID-19 Order No. 42, "Order Resuming State Permitting Deadlines and Continuing to Extend the Validity of Certain State Permits" issued on July 2, 2020 ("COVID Order No. 42"). The Governor ended the state of emergency on June 15, 2021, thus order number 42 expired on

that date. Most importantly under this Act, pertaining to permit tolling. Tolling (essentially pausing the clock) applies to approvals that have a stated expiration date that occurs after the end of the state of emergency, assuming the approval was issued prior to March 10, 2020. The new expiration date of these permits is calculated by adding 462 days, which is equivalent to the number of days of the state of emergency, to the expiration date. Ms. Pierce allowed Water & Wetland to conduct a one-time treatment of variable milfoil using diquat herbicide under this permit tolling provision. Additionally, during this conversation, Ms. Pierce and Joe Onorato, co-owner of Water & Wetland, agreed that no further treatments would occur until a new Notice of Intent was filed and subsequent Order of Conditions was received.

Under this 2021 approval, Water & Wetland initially reviewed all required Special Conditions within the Order of Conditions. A pre-treatment survey was conducted specifically to document the presence, distribution, and densities of invasive species within the Lake. The survey conducted on June 4, 2021, noted large areas of dense variable watermilfoil with trace fanwort mixed in at several of the scattered survey points. Several native species were documented throughout the littoral zone such as waterlilies, watershield, and bladderwort; with sparse densities of snailseed pondweed (*Potamogeton bicupulatus*) and filamentous algae. A permit was



Figure 2 Dense variable milfoil

obtained from MA-DEP on June 5th, and all required pre-treatment data was submitted to Conservation, including the MA-DEP Permit, vegetation maps, herbicide information, and applicator licenses. The treatment conducted on June 10, 2021, utilized contact herbicides diquat and flumioxazin for the control of the target invasive species. A post-treatment survey was later conducted on August 31st to document treatment efficacy and to guide future management of Cocasset Lake. A year-end summary report was provided for Foxborough Conservation Commission in December.

Based on this history and most recently the 2021 surveys conducted by Water & Wetland, management within Cocasset Lake is necessary to preserve the health of the waterbody. Both milfoil and fanwort spread through fragmentation and can form dense mats that inhibit recreation, overtake habitat and outcompete beneficial native vegetation, thus lowering diversity. Native waterlilies and watershield have reached nuisance levels in Cocasset Lake that warrant management small-scale selective management. While lilies and watershield are both native and provide valuable fish cover and habitat, nuisance growth which covers large areas has negative implications on a waterbody and warrants management. Thick lilies spanning large areas not only inhibit recreational use of shoreline properties and beach areas but also interfere with oxygen exchange which harms the fishery and can lead to algae blooms. For these reasons, we have included management of nuisance level floating vegetation only when warranted. Similarly native water willow (*Justicia americana*) has encroached shoreline areas over the last several years including around most of the island. Our program includes only selective management of this species in small areas as necessary to retain open water habitat.

Another concern with Cocasset Lake is nuisance level growth of filamentous algae as well as signs of microscopic algae such as discolored water and low clarity. While algal growth serves an important role in the eco-system as a beneficial food source, dense filamentous algae can cause depleted dissolved oxygen and even fish kills. Given that Cocasset Lake is used for recreational activities, the safety of its users is of utmost importance and cyanobacteria is of extreme concern. Historically, Cocasset Lake has not exhibited algae issues, but with nearby waterbodies having closures due to cyanobacteria, we are requesting algacide use in the unlikely event a bloom occurs.

The conditions described above are not conducive to a healthy aquatic eco-system and require management to improve water quality and habitat. Accordingly, the project proposes to initiate an Aquatic Management Program to improve the ecological function and value of Cocasset Lake. The following information provides a detailed description of wetland resource areas within the project area and key project elements.

Wildlife/Habitat

310 CMR 10.12(3) states:

Notwithstanding the provisions of 310 CMR 10.54(4)(a)5., 10.56(4)(a)4., and 10.60, a person submitting a Notice of Intent for an Ecological Restoration Project that meets the requirements of 310 CMR 10.12(1) and (2) is exempt from the requirement to perform a wildlife habitat evaluation in accordance with 310 CMR 10.60.

Despite this, we have collected baseline data pertaining to wildlife and habitat at Cocasset Lake during our 2021 surveys. Our observations of the Lake note typical amphibian and reptile species such as snapping turtles, painted turtles, green frogs, and northern water snakes. Due to the maximum depth of Cocasset Lake, a warm water fishery has been observed. Fish species noted in Cocasset Lake include largemouth bass, pickerel, yellow perch, bluegill, and pumpkin seed. During our surveys several birds were observed including blue heron, ducks, and mallards. The density of the vegetation and invasive species are likely to restrict foraging. Several habitat features were observed including down tree branches, overhanging trees, and areas of native plants. These features were considered when conducting our recent alternatives analysis. The plan detailed below aims to be as selective as possible while improving habitat and water quality.

Project Description

The proposed implementation of an Aquatic Management Program includes the following elements:

1. Initial Procellacor (florpyrauxifen-benzyl) treatment of Cocasset Lake during the first year (anticipated in 2022) of the program to provide systemic control of the invasive milfoil population currently dominating the vegetation assemblage. If necessary, excessive waterlily and water willow growth may be selectively targeted using a foliar treatment of EPA/MA approved aquatic herbicides. All management will be paired with pre- and post-treatment surveys to confirm appropriate management conditions, treatment areas, timing as well as to confirm the effects of the management. Pre-treatment information will be provided to Foxborough Conservation Commission including a summary of the pre-treatment survey, MA DEP Permit, survey/treatment area maps, herbicide/algacide information.

2. Surveys in subsequent years to document regrowth of invasive species and nuisance vegetation and/or algae growth.

- During these years, management activities will be based on survey results and/or water quality sampling. Activities may include Diver assisted suction harvesting (DASH), or spot treatments with EPA/MA approved aquatic herbicides, as applicable based on survey data. Prior to any annual management, pre-management data will be provided to Foxborough Conservation Commission.

3. Cocasset Lake Association will continue its effort to educate shoreline abutters on best management practices, to include best fertilization practices, encouraging beneficial shoreline buffers, landscape best practices (i.e., not dumping/blowing leaves into the Pond or regulated buffer area), and invasive plant ID. Water & Wetland, LLC commits to providing Cocasset Lake Association with education materials to circulate amongst the abutters.

Maintenance will be performed over the course of several years and will take an integrated approach, as is always the case with pond and lake management. Details of the proposed management techniques are described below in subsequent sections of this application. No significant alteration to the wetland resource areas will occur as a result of the proposed Aquatic Management Program; instead, the resource areas will be enhanced by controlling non-native invasive variable watermilfoil and fanwort, as well as nuisance level waterlilies, water willow, and dense or potentially harmful algae growth. This will subsequently improve water quality, wildlife habitat, and retard eutrophication.

Initial Management Year

Permitting

Once an Order of Conditions has been issued by Foxborough Conservation Commission, the licensed application company will prepare and file for the required State Pesticide Use Permit (WM04) with Massachusetts Department of Environmental Protection (MA-DEP). The permit application will include all required forms, maps, and project descriptions.

Aquatic Vegetation Surveys/Monitoring

A pre-treatment survey of Cocasset Lake will be performed in the Spring (anticipated in May) from a motored boat with and will include visual observation as well as a standard throw-rake, as necessary. Hand-held GPS will be used to document the coordinates and distribution of nuisance and invasive species in the waterbody. The pre-treatment survey is planned for early season, as milfoil and fanwort start actively growing. Water & Wetland's standard practice includes collection of basic water quality info such as: temperature, dissolved oxygen, and Secchi disc (water clarity) each time we visit a waterbody.

Following all management, in September, a final survey will be performed. The post-management survey will include visual observation, use of a throw-rake, and hand-held GPS, which provides coordinates of plant locations. The purpose of the post-treatment survey is to document post-treatment conditions and to guide future



management. Information from the pre- and post-treatment surveys, as well as any management will be included in the year end summary report provided to Foxborough Conservation Commission.

Procellacor Treatment / Other Treatments

Following the pre-treatment survey, an initial Procellacor (florpyrauxifen-benzyl) treatment is anticipated for variable watermilfoil control. ProcellaCOR is a highly selective systemic herbicide used for the management of freshwater aquatic vegetation. ProcellaCOR is highly selective and impacts milfoil with minimal impact to native pondweeds. While ProcellaCOR provides multiple year systemic control of milfoil, it also acts much like a contact herbicide in that it makes spot-treatment possible, yet also has a very short half-life in water (roughly 9 hours). Usage of



ProcellaCOR allows for less product in the water. Due to its selective formulation, ProcellaCOR can be applied at very low concentrations. Treatment of variable milfoil at Cocasset Lake would require approximately 3-4 prescription dose units (PDU) per acre-foot, depending on the area treated. One PDU is equal to 3.2 fluid ounces of product. Because Cocasset Lake is shallow with an average depth of approximately 7 feet, the average depth of the shoreline treatment areas is anticipated to be approximately 4.5-5 feet. Based on our estimations, we anticipate a treatment area of approximately 12 total surface acres. Using the figures previously mentioned, the 2022 treatment would require approximately between 162-240 PDUs (which is only 4-6 gallons spread across the 12 surface acres). This application is anticipated in June, when the milfoil is actively growing. Procellacor provides several years of nuisance level milfoil control and is effective in New England into mid-September, however prudent practice would require treatment earlier in the season to minimize biomass die-off. The herbicide will be injected into the waterbody using a custom jon boat or airboat with a calibrated sub-surface pumping system. Procellacor has no labeled restriction on swimming, boating, or fishing. At our planned application rates, irrigation using pond water would be restricted for 7-days following treatment. No disruptions or impacts to the wetland are anticipated during launch or removal of the treatment boat.

Following the Procellacor treatment, and based on monitoring, a spot treatment to scale back nuisance level waterlilies, watershield, and/or water willow may be incorporated. Treatment, using EPA/MA approved Clearcast (imazamox), or equivalent, will be applied to only nuisance level lilies or water willow to scale them back to a desirable and healthy level. Imazamox has shown excellent efficacy on floating leaf and emergent species throughout Massachusetts for many years. The herbicide mixture (paired with a methylated seed oil surfactant – MSO) will be applied through foliar application directly on to the target plants. The MSO, a surfactant, acts as a sticking agent and increases plant uptake and herbicide efficacy. If this treatment is necessary, pre-treatment data will be provided to the Conservation Commission in advance. The goal of these applications is by no means to eradicate these target species, but to apply extremely selective treatments to small areas which have encroached on open-water habitat and jeopardize oxygen transfer.

Algae will be closely monitored throughout the season. In the event secchi disk readings drop, algae sampling warrants, or filamentous or benthic algae exceeds >15% of the waterbody, we may implement an aquatic algaecide treatment. In this event, the most appropriate copper-based algaecide will be applied. This may include Captain XTR, EarthTec, or traditional copper sulfate, as appropriate. These treatments will be implemented only as warranted and Conservation will be provided with pre-treatment documentation in advance. Copper sulfate is commonly used in drinking water reservoirs throughout the Commonwealth and United States to manage potentially toxic algae species, as well as taste and odor issues.

Brightly colored, neon posters will be posted prior to any treatments. The neon posters will fulfill permit requirements and will note, at a minimum, the lake name, treatment date, Water & Wetland contact information, and any affiliated water use restrictions. These posters are typically hung on telephone poles, and trees are avoided.

Subsequent Management Years

As mentioned above, the aquatic management program will take a maintenance approach. Managing of invasive species, and other water quality issues is a long-term commitment. We anticipate multi-year nuisance level milfoil control within the initial year's treatment areas. Despite this, we do anticipate regrowth in subsequent years. Additionally, Procellacor is highly selective to milfoil species and will have little to no impact on fanwort. Lastly, algae must be closely monitored to determine if management is necessary.

During the course of the multi-year management program, annual surveys will be undertaken in the late-Spring/early-Summer. These surveys of Cocasset Lake will be performed from a 12' jon boat and will include visual observation as well as a standard throw-rake, as necessary. Hand-held GPS will be used to document the coordinates and distribution of nuisance and invasive species in the waterbody. Following the survey each year, recommendations will be provided to the Cocasset Lake Association to determine the best approach to management. If regrowth of invasive species is documented, it will be managed in the most appropriate manner.

For low density regrowth in small areas, we are requesting to implement diver assisted suction harvesting (DASH). DASH is the process of lake weed removal in which a diver visually identifies the plant being targeted, removes it by the root system, and deposits it into a containment bag at the surface via a suction hose, allowing for bulk removal. By Removing the invasive or nuisance species that is causing the problem, the capability of native plants to repopulate the areas that they have been pushed out of increases, giving the system a chance to return to a natural balance. The extraction of each plant by its root system is important as it provides carry over control into subsequent years.

As areas extend beyond smaller areas (>.25 acres) or greater than sparse to moderate density, DASH becomes not only difficult and time consuming but also extremely cost prohibitive. Given this, when areas/densities of nuisance/invasive species regrowth extend beyond what can be reasonably handled through DASH, the use of contact and/or systemic herbicides is requested. Typically, densities that exceed 100 stems per acre become difficult to manage through DASH, this will be considered annually when determining the most appropriate techniques for spot-management of invasive species. All DASH work will be conducted by certified SCUBA divers with experience identifying the target species. All harvested material will be disposed of off-site in a non-regulated area. In the event spot-treatment of regrowth is

warranted, a MA-DEP License to Apply Chemicals Permit (WM04) will be obtained annually prior to treatment(s). Foxborough Conservation Commission will be provided with data prior to any management.

Our program considered the presence of fanwort in Cocasset Lake; however, our 2021 surveys show extremely limited fanwort throughout the waterbody. Fanwort can spread rapidly and take over entire waterbodies. Our approach relies heavily on monitoring and spot management. Documented in 2021, variable milfoil is by far the densest invasive species throughout the Lake and will be systemically controlled through the Procellacor application. As to not let fanwort take over, surveys play an integral role. A detailed alternatives analysis is included in the sections below, but several techniques were quickly ruled out. Biological control through stocking of triploid grass carp is prohibited in Massachusetts. Benthic mats are not only non-selective, but they are best suited for only small beach or dock areas. Mechanical removal of the target milfoil and fanwort would be extremely short lived, expensive, but most importantly may promote the spread of these two species. Given these alternatives, two additional EPA/MA approved herbicides are included below. These two herbicides, fluridone and flumioxazin, are the only two Massachusetts approved products which have efficacy on fanwort.

Herbicide/Algaecide Information

The following products are requested for use during the term of the multi-year management program:

Fluridone (Sonar – EPA # 67690-4 or equivalent)

Fluridone is a systemic herbicide that offers multi-year control on several species of invasive aquatic vegetation, including fanwort and milfoil. Sonar is the most common brand name of fluridone herbicide and is an aquatic herbicide that was initially registered with the Environmental Protection Agency (EPA) in 1986 and has been used throughout Massachusetts and the United States for decades. The herbicide inhibits the photosynthesis process by stopping plants from making a protective pigment that keeps chlorophyll from breaking down in the sunlight. Fluridone moves quickly throughout a waterbody and is therefore usually applied as a whole lake/basin treatment. Fluridone requires an extended contact time (typically 45+ days) until target plant mortality is achieved. Fluridone, when applied at recommended dosages is generally viewed as having one of the most environmentally friendly toxicology profiles of all products currently on the market. The US EPA has approved a limit of 150 ppb to be allowed in water used for drinking. Ideally, fluridone treatments are initiated early in the growing season when target vegetation is low or starting emergence. Both liquid and granular formations of fluridone herbicide are available and requested under this management plan. The fluridone label restricts usage within one-quarter mile of a potable water intake and no use of treated water for irrigation purposes within 30 days of application. There are no labeled restrictions on swimming, boating, or fishing. The shoreline of the ponds will be posted with brightly colored signs warning of temporary water uses restrictions prior to treatment. Sonar is the only MA/EPA approved systemic herbicide to have efficacy on fanwort.

Impacts Specific to the Wetlands Protection Act using Fluridone¹

- Protection of public and private water supply – Generally neutral, but may have detriment at high doses (prohibition within 0.25-mi. of drinking water intakes at doses >20 ppb)
- Protection of groundwater supply – Generally neutral (no significant interaction)
- Storm damage prevention – Neutral (no significant interaction)
- Prevention of pollution – Generally neutral (no significant interaction)

- Protection of land containing shellfish - Generally neutral (no significant interaction)
- Protection of fisheries - Possible benefit (habitat enhancement) and possible detriment (food source alteration, loss of cover)
- Protection of wildlife habitat – Possible benefit (habitat enhancement) and possible detriment (food source alteration, loss of cover)

¹ Commonwealth of Massachusetts Executive Office of Environmental Affairs. Practical Guide to Lake Management: 2004. 133 p.

Diquat (Reward - EPA # 100-1091 or equivalent)

Diquat (common trade names: Reward, Tribune, Alligare Diquat etc.) is a contact herbicide commonly used for spot or partial pond applications due to its rapid mode of action and short herbicide concentration-exposure-time requirements. The USEPA/MA registered herbicide diquat dibromide is planned for milfoil regrowth that extends beyond what can be reasonably managed through diver assisted suction harvesting as well as curlyleaf pondweed control, as necessary. Diquat would be used within label rates and an application rate of .5 - 2 gallons per surface acre is anticipated, if necessary. Curlyleaf pondweed treatment rates are on the lower end of the spectrum, with Eurasian milfoil rates being on the higher end. All diquat applications will be based on annual surveys. Temporary water use restrictions for diquat: 1) No drinking or cooking for 3 days. 2) No irrigation of turf for 3 days 3) no irrigation of food crops for 5 days 4) No livestock watering for 1 day. There are no restrictions on swimming, boating, or fishing. The shoreline of the pond will be posted with signs warning of these temporary water use restrictions, prior to treatment. Diquat is translocated to some extent within the plant. Its rapid action tends to disrupt the leaf cuticle of plants and acts by interfering with photosynthesis. Upon contact with the soil, it is adsorbed immediately and thereby biologically inactivated. Residual levels of diquat in treated water decline rapidly and their reduction is due to the uptake by the targeted vegetation and absorption to suspended soil particles in the water or on the pond bottom. Diquat has been used in Cocasset Lake for control of variable milfoil for many years and may be used to manage regrowth if density/cover extends beyond what could be reasonably controlled through DASH.

Impacts Specific to the Wetlands Protection Act using Diquat²

- Protection of public and private water supply – Benefit (water quality improvement)
- Protection of groundwater supply – Neutral no interaction as diquat is absorbed to soil particles
- Flood control - Neutral (no significant interaction)
- Storm damage prevention – Neutral (no significant interaction)
- Prevention of pollution – Generally neutral (no significant interaction), but could be a detriment if plant die-off causes low oxygen at the bottom of the lake
- Protection of land containing shellfish - Generally neutral (no significant interaction), but reduced algae might reduce food resources for shellfish, and direct toxicity is possible under unusual circumstances
- Protection of fisheries - Possible benefit (habitat enhancement) and possible detriment (food source alteration, loss of cover)
- Protection of wildlife habitat – Possible benefit (habitat enhancement) and possible detriment (food source alteration, loss of cover)

²Commonwealth of Massachusetts Executive Office of Environmental Affairs. Practical Guide to Lake Management: 2004. 124 p.

Imazamox (Clearcast – EPA # 241-437-67690, Imox – EPA # 20180108 or equivalent)

USEPA/MA registered herbicide Imazamox will be applied to the waterlily or water willow growth at or below the permissible label dose. Imazamox will be applied to control the target species at the application rate of approximately 3 qts/ac. Temporary water use restrictions for Imazamox are: 1) No drinking or cooking until residue testing results are below 50 ppb, 2) No irrigation until concentrations are below 50 ppb. There are no restrictions on swimming, boating, fishing, watering of livestock, or domestic use, but prudent herbicide management suggest that we close the area on the day of treatment. The shoreline will be posted with signs warning of these temporary water use restrictions prior to treatment. Imazamox is a systemic herbicide. When applied as a foliar spray, it is quickly absorbed by foliage and rapidly translocated to the growing points stopping growth. The concentrated herbicide is diluted with water and applied via a low-volume pumping system. A spray adjuvant will be mixed with the diluted herbicide to improve uptake into the plant and acts as a sticking agent. When applying foliar spray, proper precautions are taken to minimize non-target impact, such as spraying on a non-windy day where precipitation is not forecasted. When applied following these protocols, herbicide levels within the waterbody are virtually non-detectable, although Clearcast (imazamox) is approved for injection treatments in aquatic environments.

Impacts Specific to the Wetlands Protection Act using Imazamox³

- Protection of public and private water supply – Generally neutral, but may have detriment at high doses (setback of treatment required, with distance based on dose and area treated)
- Protection of groundwater supply – Neutral (no interaction)
- Flood control - Neutral (no significant interaction)
- Storm damage prevention – Neutral (no significant interaction)
- Prevention of pollution – Generally neutral (no significant interaction), but could be a detriment if plant die-off causes low oxygen at the bottom of the lake
- Protection of land containing shellfish - Generally neutral (no significant interaction)
- Protection of fisheries - Possible benefit (habitat enhancement) and possible detriment (food source alteration, loss of cover)
- Protection of wildlife habitat – Possible benefit (habitat enhancement) and possible detriment (food source alteration, loss of cover)

³Commonwealth of Massachusetts Executive Office of Environmental Affairs. Practical Guide to Lake Management: 2004. 133 p.

Flumioxazin (Clipper - EPA # 59639-161 or equivalent)

Flumioxazin (Clipper or equivalent) is EPA/MA approved and is one of only two approved herbicides that can effectively control fanwort and is the only contact herbicide available. The other herbicide, fluridone (Sonar) is a systemic herbicide geared mostly towards whole pond applications. Clipper will be utilized in Cocasset Lake for spot-management of fanwort, beyond what can be reasonably controlled through diver assisted suction harvesting. Flumioxazin herbicide is classified as a PPO (Protoporphyrinogen oxidase) inhibitor that initiates cell membrane disruption providing control of a broad range of susceptible plants. Flumioxazin works extremely quickly and provides effective seasonal control of target plant species. Another benefit to flumioxazin is that it has a very short half-life, so it is perfect for spot/site specific treatments.

Impacts Specific to the Wetlands Protection Act using Flumioxazin

- Protection of public and private water supply – Benefit (water quality improvement)
- Protection of groundwater supply – Neutral no interaction as flumioxazin has a low leaching potential
- Flood control - Neutral (no significant interaction)
- Storm damage prevention – Neutral (no significant interaction)
- Prevention of pollution – Generally neutral (no significant interaction), but could be a detriment if plant die-off causes low oxygen at the bottom of the lake
- Protection of land containing shellfish - Generally neutral (no significant interaction), but reduced algae might reduce food resources for shellfish, and direct toxicity is possible under unusual circumstances
- Protection of fisheries - Possible benefit (habitat enhancement) and possible detriment (food source alteration, loss of cover)
- Protection of wildlife habitat – Possible benefit (habitat enhancement) and possible detriment (food source alteration, loss of cover)

Florpyrauxifen-benzyl (ProcellaCOR EC - EPA # 67690-80 or equivalent)

Procellacor (florpyrauxifen-benzyl) was approved by the EPA in recent years and Massachusetts registration soon followed. This herbicide will be incorporated into the management plan to control milfoil. Procellacor is new technology, which is highly selective on milfoil, and having minimal impact on many native beneficial pondweed species. This new technology leads to lessened product use rates which relates to ounces versus gallons. The herbicide will be applied to the area at or below the permissible label dose. Procellacor requires a short contact-exposure time for the control of the target species, concentrations only need to be maintained for hours to several days to achieve management. The benefit of Procellacor, aside from the high selectivity is that it works much like a contact herbicide but has excellent systemic activity. In many cases, milfoil treated with Procellacor will be controlled from reaching a nuisance level for several years. Temporary water-use restrictions for Procellacor include no non-agricultural irrigation to vegetation other than turf according to Table on product label (6 hours to 35 days) depending on area treated/rates. There are no restrictions on swimming, boating, or fishing. The herbicide is quickly absorbed by the target vegetation and translocated within the plant. The mode of action of the herbicide causes impacted vegetation to lose structural integrity at growth nodes. Residual levels of the herbicide in treated water decline rapidly and reduction is due to the uptake by the target vegetation and degradation.

Impacts Specific to the Wetlands Protection Act using Florpyrauxifen-benzyl

- Protection of public and private water supply – Neutral (no significant interaction)
- Protection of groundwater supply – Generally neutral (no interaction)
- Flood control - Neutral (no significant interaction)
- Storm damage prevention – Neutral (no significant interaction)
- Prevention of pollution – Generally neutral (no significant interaction), but could be a detriment if plant die-off causes low oxygen at the bottom of the lake
- Protection of land containing shellfish - Generally neutral (no significant interaction), but reduced algae might reduce food resources for shellfish, and direct toxicity is possible under unusual circumstances
- Protection of fisheries - Possible benefit (habitat enhancement) and possible detriment (food source alteration, loss of cover)

- Protection of wildlife habitat – Possible benefit (habitat enhancement) and possible detriment (food source alteration, loss of cover)

Copper Based Algaecides (Captain – EPA # 67690-9, SeClear – EPA # 67690-55, or equivalent)

Copper based algaecides (i.e., CuSO₄, Captain, SeClear) are requested and will be utilized as dictated by monitoring/sampling. These types of algaecides are regularly used throughout Massachusetts, including in drinking water reservoirs. There are no water use restrictions associated with copper-based algaecides, even in drinking water. The concentrated liquid algaecides are first diluted with pond water and are then distributed throughout the pond area. The application rate is generally 0.2 ppm, but generally much less for algae control. When applied, the treatment area will be limited to 50% of the waterbody volume, as required per label. In the case a whole pond application is needed, 50% of the waterbody will be treated and a follow-up application to the remaining portion of the waterbody will be initiated 14 days later.

Impacts Specific to the Wetlands Protection Act using Copper⁴ algaecides

- Protection of public and private water supply – Benefit (used to control algae)
- Protection of groundwater supply – Neutral (no significant interaction)
- Flood control - Neutral (no significant interaction)
- Storm damage prevention – Neutral (no significant interaction)
- Prevention of pollution - Generally neutral (no significant interaction), but could be a detriment if algae/plant die-off causes low oxygen at the bottom of the lake or causes release of taste and odor compounds or toxins
- Protection of land containing shellfish - Generally neutral (no significant interaction), but reduced algae might reduce food resources for shellfish, and direct toxicity is possible under unusual circumstances.
- Protection of fisheries - Possible benefit (habitat enhancement) and possible detriment (food source alteration, direct toxicity)
- Protection of wildlife habitat – Possible benefit (habitat enhancement) and possible detriment (food source alteration, direct toxicity)

⁴Commonwealth of Massachusetts Executive Office of Environmental Affairs. Practical Guide to Lake Management: 2004. 122 p.

Management Techniques Description

Detailed information on all the approaches proposed in this NOI can be found at the Massachusetts Department of Conservation and Recreation, Lakes and Ponds Program website. There are links under the Publications tab to the "Generic Environmental Impact Report for Eutrophication and Lake Management in Massachusetts" and the "Practical Guide to Lake Management in Massachusetts."

<http://www.mass.gov/eea/agencies/dcr/water-res-protection/lakes-and-ponds/eutrophication-and-aquatic-plant-management.html>

Additional information on the herbicides and algaecides can be found at the **Massachusetts Department of Agricultural Resources website:**

<http://www.mass.gov/eea/agencies/agr/pesticides/aquatic-vegetation-management.html>

Alternatives Analysis

Prior to submission of this Notice of Intent, several alternatives to the proposed Aquatic Plant Management Plan were considered. Water & Wetland, LLC evaluated all available strategies for management of Cocasset Lake. Several chemical and non-chemical strategies are proposed, however several strategies were ruled as “not recommended” or “not recommended at this time.” Findings and recommendations are based on direct experience, review of Cocasset Lake historical management records and reports, and discussions found in the Eutrophication and Aquatic Plant Management in Massachusetts Final Generic Environmental Impact Review (FGEIR, EOE 2004).

The following strategies were considered when determining the best management approach:

Mechanical Harvesting: Not Recommended

Mechanical harvesting is appropriate for certain types of vegetation, such as water chestnut which drops seeds annually. Harvesting of the target species in Cocasset Lake is not recommended because it is not species selective, provides only temporary control of plant growth. The two dominant invasive species in the Lake, variable milfoil and fanwort, can spread through fragmentation which can increase the extent and density of those species. Mechanical harvesting cuts and collects plants, while many plants are removed, cutting leads to fragments escaping and thus promoting the spread of these invasive species. Additionally, harvesting is costly and at best would only provide a season of relief from the vegetation growth with little likelihood of any long-term success. The disruption and non-target impacts would be more significant than with spot-treatments using aquatic herbicides.

Mechanical Hydro-Raking: Not Recommended

Hydro-raking of the species within Cocasset Lake is not recommended as access is limited and would add maximum disturbance. Hydro-raking is not effective on algae and like mechanical harvesting (described above) would promote fragmentation and spread of milfoil and fanwort. While hydro-raking has shown excellent efficacy on removal of waterlily rhizomes and water willow, we do not feel this is a fit at this time. In the event mechanical hydro-raking is recommended for waterlily rhizome removal in the future, a request for a minor change or amendment will be submitted to Foxborough Conservation Commission.

Biological: Not Recommended

There are no proven biological controls available or approved by the State of Massachusetts for the control of fanwort and/or variable watermilfoil. The option of using triploid grass carp for vegetation control is not permitted in Massachusetts.

Sediment Excavation / Dredging: Not Recommended

Dredging nutrient rich bottom sediment is sometimes used as a strategy to control excessive weed growth. Conventional (dry) or hydraulic (suction) dredging requires an extensive project that is extremely cost prohibitive. Access and staging areas may also be a limiting factor to this management strategy. Dredging may also have severe impacts to aquatic organisms (i.e., fish and macroinvertebrates) in the Lake, with no guarantees of elimination of nuisance vegetation and algae.

Drawdown: Not Recommended

While drawdowns have shown to have a slight effectiveness on fanwort and variable water milfoil, they are highly dependent on ideal winter weather conditions. Additionally, deep drawdowns which would allow for potential control of milfoil and fanwort within greater depths of the Ponds, may have negative implications on fish and other species. The Association may need to drawdown the Lake for dam maintenance, or inspection. If this is the case, the Association will work with the Conservation Commission to gain specific approval when needed. For all intents and purposes, drawdown is not a part of the included management plan.

Benthic Mats: Not Recommended

Benthic mats are mats placed in small areas to shade sunlight, thus limiting all plant growth in a target area. This approach can be beneficial in beach or swim areas but is neither practical nor cost effective pond-wide. Additionally, this approach is non-selective. The plan described above allows for much more selectivity than benthic mats would. In the event a benthic mat is planned for a specific beach or swim area in the future, a minor change request or amendment will be filed with the Conservation Commission along with specific plans for the type of mat to be installed, specific areas and maintenance procedures.

Do Nothing: Not Recommended

If the invasive species within Cocasset Lake are allowed to continue unmanaged, habitat degradation and the eventual loss of native species diversity is imminent. Additionally, eutrophication and filling-in at the waterbody will continue to occur at an accelerated rate due to the annual decomposition of excessive plant material. Possible anoxic conditions could arise from unbalance plant growth that would degrade water quality and potentially impact fish and other aquatic organisms. Stagnant conditions will also increase water temperatures potentially promoting both algae and bacterial growth as well as possibly providing extensive mosquito breeding habitat. The waterbody's recreational and aesthetic value would be significantly degraded. Lastly, dense milfoil and fanwort poses a safety risk to the swimmers of Cocasset Lake.

Estimated Habitats of Rare and Endangered Species

Water & Wetland, LLC has checked the Natural Heritage and Endangered Species Program Database (NHESP) to confirm whether Cocasset Lake contains rare or endangered species. According to the most recent maps, the Lake does not fall within an area designated as a priority habitat or estimated habitat (Figure 2), or an area of critical concern (ACEC).

Impacts of the Proposed Management Plan Specific to the Wetlands Protection Act

The following section provides a brief discussion of the proposed management program's impacts on the statutory interests of the Wetlands Protection Act

Protection of Public and Private Water Supply

Cocasset Lake is not used as a drinking water supply. Aquatic herbicide treatments at this waterbody will not have any adverse impacts on the public or private water supply, when used in accordance with the project label and conditions of the MA DEP License to Apply Chemicals.

Protection of Groundwater Supply

Several studies show that the groundwater supply will not be adversely impacted by the proposed management strategies, specifically the application of herbicides and algaecides at proposed rates in Cocasset Lake. Contamination of groundwater by aquatic herbicides is limited by their low rate of application, rapid rate of degradation, and uptake by target plants.

Flood Control and Storm Damage Prevention

No construction, dredging or alterations of the existing floodplain and storm damage prevention characteristics of the waterbody are proposed. Unmanaged, annual growth and decomposition of abundant plant growth can contribute to limiting hydraulic capacity, flow and/or outflow, and will increase sediment deposition. Therefore, the proposed management techniques may increase the capacity of the resource area over the long-term to provide flood protection.

Prevention of Pollution

No degradation of water quality or increased pollution is expected by the proposed management program. The proposed herbicides are relatively slow acting in controlling the nuisance vegetation. This results in a slow release of nutrients from the decaying plants, reducing the potential for increases in nutrients that can cause algae blooms. Additionally, when using contact herbicides and algaecides, treatments will be limited to no more than 50% of the water volume at one time. Removal of the excessive growth of aquatic vegetation will contribute to improved water movement and a reduction in the potential for anoxic conditions. The post-treatment decrease in plant biomass will help to decrease the rate of eutrophication currently caused by the decomposing of excessive plant material.

Protection of Fisheries and Shellfisheries

Dense beds of aquatic vegetation provide poor habitat for most fish species. These conditions have the ability to cause significant fluctuations in dissolved oxygen as well as oxygen depletion during certain times of the year. While temporary effects on some desirable submersed and floating-leafed species may occur following the application of an aquatic herbicide, many non-target, native plants typically rebound quickly.

Protection of wildlife and wildlife habitat

Excessive dense plant growth, especially non-native plants, provides poor wildlife habitat for fish and other wildlife. The proposed management plan is expected to help prevent further degradation of the waterbody through excessive weed growth and improve the wildlife habitat value long-term. The goal of the multi-year management approach is to increase open-water habitat and biodiversity.

Abutter Notification

Abutters within 100 feet of Cocasset Lake, including abutters across streets and in other towns (if applicable) will be notified in writing by Certificate of Mailing in accordance with the Massachusetts

Department of Environmental Protection (MADEP) policy regarding such notice, which is in effect for NOIs filed after April 13, 1994. Certificates of mailing will be provided to Conservation Commission upon notification.

Forms and Fees

Fee calculation sheets and fee transmittal forms are attached to this application (See Forms). The fee schedule has been filled and filed with MADEP through eDEP.

Compliance

The objective of this project is to control invasive and nuisance species. Managing densities of invasive species will typically not adversely affect wildlife habitat and will not negatively impact other interests of the Massachusetts Wetlands Protection Act. No significant alteration to wetland resources areas will occur as a result of the proposed management program, in fact resource areas will be enhanced by controlling the nuisance plant growth. The proposed management activities are consistent with the guidelines in the following documents:

- Final Generic Environmental Impact Report: Eutrophication and Aquatic Plant Management in Massachusetts (June 2004)
- Guidance for Aquatic Plant Management in Lakes and Ponds: As it Relates to the Wetlands Protection Act (April 2004 – DEP Policy/SOP/Guideline # BRP/DWM/WW/G04-1)
- The Practical Guide to Lake Management in Massachusetts (2004)

All chemical applications will be performed by MA Certified Applicators. The USEPA/MA registered aquatic herbicides will be applied within label rates, in accordance with all associated permits such as the Order of Conditions, BRP WM04 Permit, and all special conditions. Prior to treatment, the shoreline will be posted with brightly colored signs warning of all temporary water use restrictions.

All management techniques proposed are approved under the Massachusetts Environmental Protection Act (MEPA) process that was approved in 2004 with the issuance of the FGEIR and the Practical Guide to Lake and Pond Management in Massachusetts. These approaches do not require individual MEPA review.

Best Management Practices / Company Protocols

Water & Wetland, LLC has implemented several company protocols to ensure best management practices are followed at all times. A list of several items is provided below.

- Prior to launching any boat, the vessel will be properly cleaned and inspected for the presence of invasive species. It is our company protocol to power wash and inspect our boats in between waterbodies. No boat will be launched until it has been properly cleaned and inspected as to not introduce invasive species into additional waterbodies.
- No equipment will be stored on-site. All equipment and product needed will be brought to the pond/lake during the day of the management activity and will be removed from the site the same day.
- In the event the airboat or other boar needs refueling or oil during treatment, the boat will be demobilized and filled outside the wetland resource area.
- Product labels/Order of Conditions/State Pesticide Use Permit will be followed at all times.

- Colin Gosselin and/or James Lacasse, the Project Managers, will be on-site during all management activities. Colin and James are properly licensed to undertake aquatic herbicide applications in Massachusetts.

Water & Wetland Company Info

Water & Wetland is a family owned, local company with nearly two decades of individual experience in pond, lake, and wetland management. Prior to founding Water & Wetland, Colin Gosselin and Joe Onorato worked in lake management and saw an opportunity to change the industry. Our goal is to provide unique, individual attention to each water body we work on. Plans are completely customized, and we pride ourselves on excellent communication with our customers. We want you to know we care about your water bodies as much as you do. While wetlands are complex and precious, they are also highly regulated in New England. We aim to find the perfect balance between restoring a healthy eco-system and achieving our customers' goals, all while working within their desired budget. The photo above shows a simple before and after of a 2020 treatment we performed for the control of fanwort and variable milfoil.



Water & Wetland offers a variety of services that stem from the initial consultation through the implementation of management. Some of these services include pond and lake vegetation surveys, water quality collection and analysis, fountain and aeration installation and service, herbicide and algacide treatments, biological options, and much more.

Request for Issuance of Order of Conditions

We hereby certify under the penalties of perjury that, to the best of our knowledge, this project meets all eligibility requirements listed in 310 CMR 10.53. The proposed project has been designed to avoid and minimize impacts to existing wetland resource areas as defined under the Massachusetts Wetlands Protection Act (MGL CH. 131 Sec. 40, et seq.). Since the interests of the Act and local Bylaw have been addressed as part of this plan, we request that a five-year Order of Conditions be issued so that Cocasset Lake Association may commence with the proposed project in June of 2022, as planned. Please feel free to reach out to me directly if you have any questions at all.

Sincerely,



Colin Gosselin, Co-Owner
Water & Wetland, LLC
colin@waterandwetland.com
c: (508) 259-3153

Forms

- NOI Filing Checklist
 - Notice of Intent (NOI) WPA Form 3
- Appendix A: Limited Ecological Restoration Project
 - Wetland Fee Transmittal Form

LAKES AND PONDS HERBICIDE TREATMENT SUBMISSIONS

LIMITED PROJECTS:

Per the requirements of Limited Projects under the Wetlands Protection Act, 310 CMR 10.53(4), the Applicant must (*place a check mark next to information that has been submitted*):

- Demonstrate that the project will improve the natural capacity of a resource area(s) to protect some or all of the interests of the Wetlands Protection Act.

To meet this test, a project must improve the natural ability of a resource area:

To protect:

- Public or private water supply;
- Ground water;
- Fisheries,
- Wildlife habitat, or

To provide:

- Flood control,
- Storm damage prevention, and/or
- To prevent pollution.

- Describe efforts proposed for **long-term management** of the lake/pond and how applicant will move away from exclusive use of short-term management methods.

Provide the following details:

- Erosion controls;
- Site access;
- Staging areas;
- Timetables for work and/or application of chemicals;
- Name of supervisor or person on call who takes responsibility for work; and
- Any other important construction considerations that might result in a resource area impact.

Fisheries:

- Identify fisheries** present in the project area.
- The proposed project has been reviewed and approved by the MA Department of Fish and Game.
- Describe how the existing aquatic vegetation serves as fish habitat in terms of:
 - Breeding habitat;
 - Food resources; and
 - Escape cover.
- This pond is stocked.
- This pond is not stocked.
- Describe how potential impacts to existing fisheries habitat been minimized, or enhanced.
- Discuss the positive and negative impacts of the project on the fisheries, including:
 - Potential fish kills;
 - Significant modification of benthic habitat; or
 - Impact to cold-water fisheries.
- Discuss how fisheries habitat will be protected, including:
 - Preservation of high quality aquatic beds;
 - Creation of more edge effect;
 - Improved balance in ratio of forage fish to game fish; or
 - Other (describe):

LAKES AND PONDS HERBICIDE TREATMENT SUBMISSIONS

DRAWDOWN PROJECTS:

Fisheries:

- Consult the Department of Fish and Game for potential fisheries impacts (prior to filing NOI).
- Provide estimated upstream and downstream flow rates during drawdown and refill.

Wildlife Habitat:

- Include a **discussion on how impacts to wildlife habitat will be minimized** by coordinating the timing of the drawdown (versus presence of amphibian eggs, the start of hibernation periods, reductions in emergent vegetation preferred by wildlife species, etc.).

Dam or Other Outlet Control Structures:

- Describe what **type of structure** is to be used to accomplish the drawdown.
- Project the rate of drawdown (inches/day), duration of, and contingency plan for closure if the structure is stuck in the open position.

Water Quality:

- Describe potential impacts from the project to:
 - Productivity;
 - Nutrient cycling;
 - Sediment inputs; and
 - Potential for algal blooms.
- Describe the following:
 - Erosion and sedimentation controls;
 - Removal of accumulated sediments prior to drawdown; or
 - Other appropriate measures to minimize the potential for flushing nutrients, sediments, and other pollutants to downstream lakes and ponds.

HERBICIDE/ALGICIDE PROJECTS - Additional Information Required:

Water Quality:

- An Application to Apply Herbicide(s) (BRP WM 04) has been submitted to the DEP Office of Watershed Management.
 - If a copy of the BRP WM 04 license is not included in the Notice of Intent, then a condition will be included in the Order of Conditions requiring that a copy of the approved BRP WM 04 license be submitted to the Conservation Commission prior to the commencement of work.
 - Application of herbicides has the potential to result in fish kills** due to low dissolved oxygen under the following circumstances (for which avoidance or limited application of herbicides will be required):
 - High water temperature;
 - High plant biomass to be controlled;
 - Shallow nutrient-rich water;
 - High percentage of the lake to be treated; or
 - Closed or non-flowing system.
-

LAKES AND PONDS HERBICIDE TREATMENT SUBMISSIONS

WILDLIFE HABITAT:

The DEP presumes that non-indigenous aquatic plants within lakes ponds are not “significant to the protection of wildlife habitat”, either in whole or as a component of a larger plant community.

As such, the control or elimination of **non-indigenous aquatic hydrophytes** within lakes or ponds will not exceed any threshold established at 310 CMR 10.56(4)(a)4 or 310 CMR 10.60, providing that work is designed and carried out using the best practical measures (BMPs).

310 CMR 10.56(4)(a)4. The capacity of said land to provide important wildlife habitat functions

Best Management Practices (BMPs) should include measures to control the following:

- Erosion;
- Suspension or transport of pollutants;
- Increases to turbidity;
- The smothering of bottom organisms;
- The accumulation of pollutants by organisms; and
- The destruction of fisheries habitat.

Land Under Water and Bordering Land Subject to Flooding (BLSF):

As required by the Wetlands Protection Act’s performance standards for land under water and bordering land subject to flooding, applicants should discuss the potential impacts on wildlife habitat and the **issuing authority may condition the project to protect wildlife** (310 CMR 10.60).

ACHIEVING COMPLIANCE WITH “WILDLIFE HABITAT EVALUATIONS”

SAFE ZONES:

The following safe zones (to remain free of herbicide applications) have been established around the perimeter of all lakes and ponds and all other important habitat features listed below:

- Within five feet (5’) of:
 - The perimeter of the lake/pond measured from the Mean Average Low Water Line (MALWL) horizontally into the lake/pond;
 - Any stand of indigenous emergent hydrophytes of sufficient density to provide escape shelter from predators, and/or nesting habitat for indigenous vertebrate wildlife; or
 - Any stand of rooted, floating and/or submerged indigenous aquatic plants that has the potential to provide egg attachment or deposition sites for amphibians, and/or serves as a food source, either directly, or indirectly, to any species of vertebrate wildlife.
- Within forty feet (40’) of:
 - Any muskrat house or feeding shelter;
 - Any rock outcropping which projects above the elevation of the MALWL that can serve as a basking site, roost, perch, or “haul-out” for indigenous vertebrate wildlife;
 - Trunks, root systems, stumps, and limbs which project above the elevation of the MALWL, and that can serve as a cavity nest, rookery, basking site, roost, or “haul-out” for indigenous vertebrate wildlife.

Plant management activities within safe zones should be limited to the following BMPs:

- Direct application of herbicides to non-indigenous species that occur within areas inhabited by indigenous hydrophytes; and/or
- Eradication of non-indigenous species using methods described in Section IX - Pioneer Infestations.



WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Foxborough Wetlands Protection Bylaw, Ch. 267

MassDEP File Number

Foxborough
Town

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
Before completing this form, consult with your local Conservation Commission regarding the Town's wetlands protection bylaw.

A. General Information

1. Project Location:

<u>Cocasset Lake</u>	<u>Foxborough</u>	<u>02035</u>
a. Street Address	b. Town	c. Zip Code
<u>Latitude and Longitude:</u>	<u>42.058563</u>	<u>-71.259618</u>
	d. Latitude	e. Longitude
<u>091</u>	<u>052</u>	
f. Assessors Map/Plat Number	g. Parcel /Lot Number	

2. Applicant:

<u>John</u>	<u>Hage</u>	
a. First Name	b. Last Name	
<u>Cocasset Lake Association</u>		
c. Organization		
<u>18 Woodland Road</u>		
d. Street Address		
<u>Foxborough</u>	<u>MA</u>	<u>02035</u>
e. City/Town	f. State	g. Zip Code
<u>617-686-3232</u>	<u>john.hage@stifel.com</u>	
h. Phone Number	i. Fax Number	j. Email Address

3. Property owner (required if different from applicant): Check if more than one owner

<u></u>	<u></u>	
a. First Name	b. Last Name	
<u></u>		
c. Organization		
<u></u>		
d. Street Address		
<u></u>	<u></u>	<u></u>
e. City/Town	f. State	g. Zip Code
<u></u>	<u></u>	<u></u>
h. Phone Number	i. Fax Number	j. Email address

4. Representative (if any):

<u>Colin</u>	<u>Gosselin</u>	
a. First Name	b. Last Name	
<u>Water & Wetland, LLC</u>		
c. Company		
<u>115 South Street</u>		
d. Street Address		
<u>Upton</u>	<u>MA</u>	<u>01568</u>
e. City/Town	f. State	g. Zip Code
<u>508-259-3153</u>	<u>info@waterandwetland.com</u>	
h. Phone Number	i. Fax Number	j. Email address

5. Total Wetland Filing Fees Paid (from Wetland Fee Transmittal Form; last page of NOI):

<u>\$500.00</u>	<u>\$237.50</u>	<u>\$262.50</u>	<u>\$500.00</u>
a. State WPA Fee/ Total	b. WPA Fee/ State's Share	c. WPA Fee/ Town's Share	d. Town Bylaw (Ch. 267) Fee



WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Foxborough Wetlands Protection Bylaw, Ch. 267

(To be provided by MassDEP)

MassDEP File Number

Foxborough
Town

A. General Information *(continued)*

6. General Project Description:

Initiation of an aquatic plant management program to retard eutrophication by managing invasive/nuisance species and improving water quality. Techniques include use of EPA/MA approved herbicides/algacides and manual removal through diver assisted suction harvesting, as applicable. All management will be based on annual surveys. See Project Description.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- 1. Single Family Home
- 2. Residential Subdivision
- 3. Commercial/Industrial
- 4. Dock/Pier
- 5. Utilities
- 6. N/A - Coastal engineering Structure
- 7. Agriculture (e.g., cranberries, forestry)
- 8. Transportation
- 9. Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.53 (inland)?

1. Yes No If yes, describe which limited project applies to this project. (See 310 CMR 10.53 for a complete list and description of limited project types)

310 CMR 10.53 (4) (e) (5) management of nuisance and invasive aquatic vegetation to impede eutrophication and improve habitat value.

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Norfolk		5170	688
a. County	b. Certificate # (if registered land)	c. Book	d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

- 1. Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, or Inland Bank.
- 2. Inland Resource Areas (see 310 CMR 10.54-10.58).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (continued)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	(if any) Proposed Replacement
a. <input type="checkbox"/> Bank	1. linear feet	2. linear feet
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet 1,412,706	2. square feet
c. <input checked="" type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet
d. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input type="checkbox"/> Riverfront Area (if checked, complete #1-6)	1. Name of Inland Waterway (if available)	
2. Width of Riverfront Area (check one):		
<input type="checkbox"/> 25 ft. - Designated Densely Developed Areas only		
<input type="checkbox"/> 100 ft. - New agricultural projects only		
<input type="checkbox"/> 200 ft. - All other projects		
3. Total area of Riverfront Area on the site of the proposed project:		square feet
4. Proposed alteration of the Riverfront Area:		
a. total square feet	b. square feet within 100 feet	c. square feet between 100 feet and 200 feet
5. Has an alternatives analysis been done and is it attached to this NOI? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
6. Was the lot where the activity is proposed created prior to August 1, 1996? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
3. <input type="checkbox"/> Bylaw Resource Areas (Foxborough Wetlands Protection Bylaw, Ch. 267; No Activity Zones)		
a. <input type="checkbox"/> 100 Foot Vernal Pool Adjacent Upland Resource Area		
b. <input type="checkbox"/> 25 Foot No Activity Zone		
4. <input type="checkbox"/> Restoration/Enhancement - If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b above, please enter the additional amount here.		
a. square feet of BVW		
5. <input type="checkbox"/> Project Involves Stream Crossings		
a. number of new stream crossings		b. number of replacement stream crossings



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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
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(To be provided by MassDEP)

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C. Other Applicable Standards and Requirements

This is a proposal for an Ecological Restoration Limited Project. *If checked, skip Section C and complete Appendix A: Ecological Restoration Notice of Intent – Required Actions (310 CMR 10.11).*

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? *To view habitat maps, see the Massachusetts Natural Heritage Atlas or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.*

a. Yes No

If yes, include proof of mailing or hand delivery of NOI to:
Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife, 1 Rabbit Hill Road
Westborough, MA 01581 - Phone: (508) 389-6360

August 1, 2021

b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); **OR** complete Section C.1.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

c. Submit Supplemental Information for Endangered Species Review*

1. Percentage/acreage of property to be altered:

(a) within wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

2. Assessor's Map or right-of-way plan of site

2. Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) Project description *(include description of impacts outside of wetland resource area & buffer zone)*

(b) Photographs representative of the site

(c) MESA filing fee - Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address (fee information available at <https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review>)

Projects altering 10 or more acres of land, also submit:

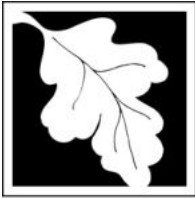
(d) Vegetation cover type map of site

(e) Project plans showing Priority & Estimated Habitat boundaries

(f) OR - see next page

* Some projects **not** in Estimated Habitat may be located in Priority Habitat (see <https://www.mass.gov/ma-endangered-species-act-mesa-regulatory-review>) and require NHESP review. Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Foxborough Wetlands Protection Bylaw, Ch. 267

(To be provided by MassDEP)

MassDEP File Number

Foxborough
Town

C. Other Applicable Standards and Requirements (continued)

(f) OR Check One of the Following

1. *Project is exempt from MESA review.*
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.59.)
2. *Separate MESA review ongoing.* _____ a. NHESP Tracking # _____ b. Date submitted to NHESP
3. *Separate MESA review completed.*
Include copy of NHESP “no Take” determination or valid Conservation and Management Permit with approved plan.

3. For coastal projects only: Not applicable – project is in inland resource area only

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

a. Yes No If yes, provide name of ACEC.

b. ACEC

5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

a. Yes No

6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A)?

a. Yes No

7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

a. **Yes.** Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

1. Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
2. A portion of the site constitutes redevelopment
3. Proprietary BMPs are included in the Stormwater Management System.

b. **No.** Check why the project is exempt:

1. Single-family house
2. Emergency road repair
3. Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.



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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
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D. Additional Information

This is a proposed Ecological Restoration Limited Project. [If checked, skip Section D and complete Appendix A: Ecological Restoration NOI; Minimum Required Documents (310 CMR 10.12).]

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

1. USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site.
2. Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.
3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.
4. List the titles and dates for all plans and other materials submitted with this NOI.

Project Narrative & Figures

a. Plan Title

Water & Wetland, LLC

b. Prepared By

, #

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

5. If more than one property owner, attach a list of property owners not listed on this form.
6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. Attach NOI Wetland Fee Transmittal Form
8. Notice of Intent Application checklist
9. Abutter Notification Form
10. Affidavit of Service Form
11. Attach Stormwater Report with signed, stamped Stormwater Checklist (unless exempt).

E. Fees

1. Fee Exempt: No filing fee shall be assessed for projects of any town, county, or district of the Commonwealth, municipal housing authority, or the Mass Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the attached NOI Wetland Fee Transmittal Form) to confirm fee payment:

- | | | | |
|--|--|---|------------------|
| 2. Check Number (town share of state fee [see A.5.c., page 1]) | <u>1123</u> | 3. Check date (town share of state fee) | <u>3/14/2022</u> |
| 4. Check Number (Bylaw filing fee [see A.5.d, page 1]) | <u>1122</u> | 5. Check date (Bylaw filing fee) | <u>3/14/2022</u> |
| 6. State Check Number (state share of state fee [see A.5.b.]) | <u>Paid for Electronically on eDep</u> | 7. Check date (state share of state filing fee) | <u>3/14/2022</u> |
| 8. First Name of Payor on checks | <u>Water & Wetland, LLC</u> | 9. Last Name of Payor on checks | |



WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Foxborough Wetlands Protection Bylaw, Ch. 267

(To be provided by MassDEP)

MassDEP File Number

Foxborough
Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge.

I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I hereby grant permission, to the Agent or member of the Conservation Commission and the Department of Environmental Protection, to enter and inspect the area subject to this Notice at reasonable hours to evaluate the wetland resource boundaries, if included with this application, subject to this Notice, and to require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant [Handwritten Signature] - Treasurer CLA

2. Date 2-28-22

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date 3/14/2022

Tax Collector's Release

The above referenced applicant is applying for a permit from the Conservation Commission and is in good standing with respect to any taxes, fees, assessments, betterments or other municipal charges as recorded with the Foxborough Treasurer's Office.

1. Signature of Tax Collector or Agent

2. Date



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Foxborough Wetlands Protection Bylaw, Ch. 267

(To be provided by MassDEP)

MassDEP File Number

Foxborough
Town

F. Signatures and Submittal Requirements

Submittal Requirements (please refer to *NOI Filing Instructions*, downloadable at https://www.foxboroughma.gov/departments/conservation/wetland_applications_guides)

For Foxborough Conservation Commission:

One original and seven (7) copies of the completed Notice of Intent (form 3), including supporting plans and documents (*listed in Section D. "Additional Information"*), NOI Filing Check List, Abutter Notification, one copy of the NOI Wetland Fee Transmittal Form (*on the following page*), and the two town fee payments (Bylaw filing fee and Town share of State filing fee), by certified mail or hand delivery to:

Foxborough Conservation Commission
Town Hall, 40 South Street, Foxborough, MA 02035

For MassDEP:

One copy of the completed Notice of Intent (form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form (*attached*), and a **copy** of the state fee payment (State share; see below) by certified mail or hand delivery to:

MassDEP Southeast Regional Office
20 Riverside Drive, Lakeville, MA 02347

State share of the filing fee (check or money order, payable to the *Commonwealth of Massachusetts*) and the NOI Wetland Fee Transmittal Form by certified mail or hand delivery to:

Department of Environmental Protection
Box 4062, Boston, MA 02211

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



Eligibility Criteria, Ecological Restoration Limited Project (310 CMR 10.53(4))

Other Ecological Restoration Projects (continued)

- Fill removal and re-grading.
- Flow restoration.
- Installation of fish passage structures.
- Invasive species management.
- Other. Describe: _____
- This project involves the construction, repair, replacement or expansion of public or private infrastructure. (310 CMR 10.53(7))
 - The NOI attachment labeled _____ is an operation and maintenance plan to ensure that the infrastructure will continue to function as designed.
 - The operation and maintenance plan will be implemented as a continuing condition in the Order of Conditions and the Certificate of Compliance.
- This project replaces an existing stream crossing (310 CMR 10.53(8)). The crossing type:
 - Replaces an existing non-tidal crossing designed to comply with the Massachusetts Stream Crossing Standards to the maximum extent practicable with details provided in the NOI.
- At a minimum, in evaluating the potential to comply with the standards to the maximum extent practicable the following criteria have been consider site constraints in meeting the standard, undesirable effects or risk in meeting the standard, and the environmental benefit of meeting the standard compared to the cost, by evaluating the following:
 - The potential for downstream flooding;
 - Upstream and downstream habitat (in-stream habitat, wetlands);
 - Potential for erosion and head-cutting;
 - Stream stability;
 - Habitat fragmentation caused by the crossing;
 - The amount of stream mileage made accessible by the improvements;
 - Storm flow conveyance;
 - Engineering design constraints specific to the crossing;
 - Hydrologic constraints specific to the crossing;
 - Impacts to wetlands that would occur by improving the crossing;
 - Potential to affect property and infrastructure; and
 - Cost of replacement.



WPA Form 3 – Notice of Intent - Appendix A: Ecological Restoration Limited Project Checklists

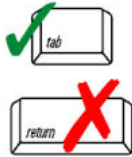
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Eligibility Checklist

This Ecological Restoration Limited Project Eligibility Checklist guides the applicant in determining if their project is eligible to file as an Inland or Coastal Ecological Restoration Limited Project (310 CMR 10.53(4) or 310 CMR 10.24(8) respectively). These criteria must be met when submitting the Ecological Restoration Limited Project Notice of Intent to ensure that the restoration and improvement of the natural capacity of a Resource Area(s) to protect and sustain the interests identified in the WPA is **necessary** to achieve the project's ecological restoration goals.

Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
Before completing this form, consult your local Conservation Commission regarding any municipal bylaw or ordinance.

Regulatory Features of All Coastal and Inland Ecological Restoration Limited Projects

- (a) May result in the temporary or permanent loss of/or conversion of Resource Area: An Ecological Restoration Limited Project that meets the requirements of 310 CMR 10.24(8) may result in the temporary or permanent loss of Resource Areas and/or the conversion of one Resource Area to another when such loss is necessary to the achievement of the project's ecological restoration goals.
- (b) Exemption from wildlife habitat evaluation: A NOI for an Ecological Restoration Limited Project that meets the minimum requirements for Ecological Restoration Projects and for a MassDEP Combined Application outlined in 310 CMR 10.12(1) and (2) is exempt from providing a wildlife habitat (310 CMR 10.60), but still must meet the general performance standards for Bank [310 CMR 10.54(4)(a)5]; Land Under Water Bodies and Waterways [310 CMR 10.56(4)(a)4], and Wildlife Habitat Evaluation [310 CMR 10.60].
- (c) The following are considerations for applicants filing an Ecological Restoration Limited Project NOI and for the issuing authority approving a project as an Ecological Restoration Limited Project:
 - The condition of existing and historic Resource Areas proposed for restoration.
 - Evidence of the extent and severity of the impairment(s) that reduce the capacity of the Resource Areas to protect and sustain the interests identified in M.G.L. c. 131, §40.
 - The magnitude and significance of the benefits of the Ecological Restoration Project in improving the capacity of the affected Resource Areas to protect and sustain the other interests identified in M.G.L. c. 131, §40.
 - The magnitude and significance of the impacts of the Ecological Restoration Project on existing Resource Areas that may be modified, converted and/or lost and the interests for which said Resource Areas are presumed significant in 310 CMR 10.00, and the extent to which the project will:
 - a. avoid adverse impacts to Resource Areas and the interests identified in M.G.L. c. 131, §40, that can be avoided without impeding the achievement of the project's ecological restoration goals.
 - b. minimize adverse impacts to Resource Areas and the interests identified in M.G.L. c. 131, §40, that are necessary to the achievement of the project's ecological restoration goals.
 - c. utilize best management practices such as erosion and siltation controls and proper construction sequencing to avoid and minimize adverse construction impacts to resource areas and the interests identified in M.G.L. c. 131, §40.

Eligibility Criteria, Ecological Restoration Limited Project (310 CMR 10.53(4))

Complete this Eligibility Criteria Checklist **before** filling out a Notice of Intent Application to determine if your project qualifies as an Inland Ecological Restoration Limited Project (310 CMR 10.53(4)).

Sign the Eligibility Certification at the end of Appendix B, and attach the checklist with supporting documentation and the Eligibility Certification to your Notice of Intent Application.



WPA Form 3 – Notice of Intent - Appendix A: Ecological Restoration Limited Project Checklists

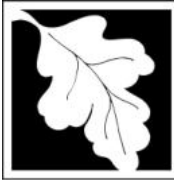
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Eligibility Criteria, Ecological Restoration Limited Project (310 CMR 10.53(4))

General Eligibility Criteria for All Inland Ecological Restoration Limited Projects

Notwithstanding the requirements of any other provision of 310 CMR 10.25 through 10.35, 310 CMR 10.54 through 10.58, and 310 CMR 10.60, the Issuing Authority may issue an Order of Conditions permitting an Ecological Restoration Project listed in 310 CMR 10.53(4)(e) as an Ecological Restoration Limited Project and impose such conditions as will contribute to the interests identified in M.G.L. c. 131, § 40, provided that:

- The project is an Ecological Restoration Project as defined in 310 CMR 10.04 and is a project type listed below [310 CMR 10.53(4)(e)].
 - Dam Removal
 - Freshwater Stream Crossing Repair and Replacement
 - Stream Daylighting
 - Rare Species Habitat Restoration
 - Restoring Fish Passageways
 - Other (describe project type): Removal of invasive aquatic vegetation
- The project will further at least one of the WPA (M.G.L. c. 131, § 40) interests identified below.
 - Protection of public or private water supply
 - Protection of ground water supply
 - Flood control
 - Storm damage prevention
 - Prevention of pollution
 - Protection of land containing shellfish
 - Protection of fisheries
 - Protection of wildlife habitat
- If the project will impact an area located within estimated habitat which is indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands, a NHESP preliminary written determination is attached to the NOI submittal that the project will have no adverse long-term and short-term effects on specified habitat sites of Rare Species or the project will be carried out in accordance with an approved NHESP habitat management plan.
- The project will be carried out in accordance with any time of year restrictions or other conditions recommended by the Division of Fisheries and Wildlife in accordance with 310 CMR 10.11(3).
- If the project involves the dredging of 100 cubic yards of sediment or more or dredging of any amount in an Outstanding Resource Water, a Water Quality Certification has been applied for or obtained.
- The project complies with all applicable provisions of 310 CMR 10.53(1), (2), (7), and (8).



Eligibility Criteria, Ecological Restoration Limited Project (310 CMR 10.53(4))

Additional Eligibility Criteria for Specific Inland Ecological Restoration Limited Project Types

These additional criteria must be met to qualify as an Ecological Restoration Limited Project to ensure that the restoration and improvement of the natural capacity of a Resource Area to protect and sustain the interests identified in the WPA is **necessary** to achieve the project's ecological restoration goals.

- This project application meets the eligibility criteria for Ecological Restoration Limited Project in accordance with [310 CMR 10.53(4)(a) through (d) and as proposed, furthers at least one of the WPA interests is for the project type identified below:
 - Dam Removal**
 - Project is consistent with MassDEP's 2007 Dam Removal Guidance.
 - Freshwater Stream Crossing Repair and Replacement.** The project as proposed and the NOI describes how:
 - Meeting the eligibility criteria set forth in 310 CMR 10.13 would result in significant stream instability or flooding hazard that cannot otherwise be mitigated, and site constraints make it impossible to meet said criteria.
 - The project design ensures that the stability of the bank is NOT impaired.
 - To the maximum extent practicable, the project provides for the restoration of the stream upstream and downstream of the structure as needed to restore stream continuity and eliminate barriers to aquatic organism movement.
 - The project complies with the requirements of 310 CMR 10.53(7) and (8).
 - Stream Daylighting Projects**
 - The project meets the eligibility criteria for Ecological Restoration Limited Project [310 CMR 10.53(4)(a) through (d)] and as proposed the NOI describes how the proposed project meets to the maximum extent practicable, consistent with the project's ecological restoration goals, all the performance standards for Bank and Land Under Water Bodies and Waterways.
 - The project meets the requirements of 310 CMR 10.12(1) and (2) and a wildlife habitat evaluation is not included in the NOI.
 - Other Ecological Restoration Projects** that meet the criteria set forth in 310 CMR 10.24(8) (a) through (d).
 - Restoration, enhancement, or management of Rare Species habitat.
 - Restoration of hydrologic and habitat connectivity.
 - Removal of aquatic nuisance vegetation to impede eutrophication.
 - Thinning or planting of vegetation to improve habitat value.
 - Riparian corridor re-naturalization.
 - River floodplain re-connection.
 - In-stream habitat enhancement.



WPA Form 3 – Notice of Intent - Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Required Actions (310 CMR 10.11)

Complete the Required Actions before submitting a Notice of Intent Application for an Ecological Restoration Project and submit a completed copy of this Checklist with the Notice of Intent.

- Massachusetts Environmental Policy Act (MEPA) / Environmental Monitor**
<http://www.mass.gov/eea/agencies/mepa/submitting-notice-to-the-environmental-monitor.html>

For Ecological Restoration Limited Projects, there are no changes to MEPA requirements.

- Submit written notification at least 14 days prior to the filing of a Notice of Intent (NOI) to the Environmental Monitor for publication. A copy of the written notification is attached and provides at minimum:
 - A brief description of the proposed project.
 - The anticipated NOI submission date to the conservation commission.
 - The name and address of the conservation commission that will review the NOI.
 - Specific details as to where copies of the NOI may be examined or acquired and where to obtain the date, time, and location of the public hearing.

Massachusetts Endangered Species Act (MESA) /Wetlands Protection Act Review

- Preliminary Massachusetts Endangered Species Act Review from the Natural Heritage and Endangered Species Program (NHESP) has been met and the written determination is attached.
- Supplemental Information for Endangered Species Review has been submitted.

1. Percentage/acreage of property to be altered:
 - a. Within Wetland Resource Area _____
Percentage/acreage
 - b. Outside Wetland Resource Area _____
Percentage/acreage
2. Assessor’s Map or right-of-way plan of site
3. Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work.
4. Project description (including description of impacts outside of wetland resource area and buffer zone)
5. Photographs representative of the site
6. MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/mesa/mesa_fee_schedule.htm)

Make check payable to “Commonwealth of Massachusetts - NHESP” and mail to NHESP:

Natural Heritage & Endangered Species Program
MA Division of Fisheries & Wildlife
1 Rabbit Hill Road
Westborough, MA 01581



Required Actions (310 CMR 10.11)

7. Projects altering 10 or more acres of land, also submit:
 - a. Vegetation cover type map of site
 - b. Project plans showing Priority & Estimated Habitat boundaries

OR Check One of the Following:

1. Project is exempt from MESA review.

Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/mass-endangered-species-act-mesa/>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.59 – see C4 below)

2. Separate MESA review ongoing.

_____ a. NHESP Tracking #

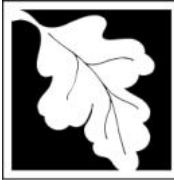
_____ b. Date submitted to NHESP

3. Separate MESA review completed. Include copy of NHESP “no Take” determination or valid Conservation & Management Permit with approved plan.

Estimated Habitat Map of State-Listed Rare Wetlands Wildlife

If a portion of the proposed project is located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP), complete the portion below. To view habitat maps, see the **Massachusetts Natural Heritage Atlas** or view the maps electronically at: <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review>

- A preliminary written determination from Natural Heritage and Endangered Species Program (NHESP) must be obtained indicating that:
- Project will NOT have long- or short-term adverse effect on the actual Resource Area located within estimated habitat indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands Wildlife published by NHESP.
 - Project will have long- or short-term adverse effect on the actual Resource Area located within estimated habitat indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands Wildlife published by NHESP. A copy of NHESP’s written preliminary determination in accordance with 310 CMR 10.11(2) is attached. This specifies:
 - Date of the map: _____
 - If the Rare Species identified is/are likely to continue to be located on or near the project, and if so, whether the Resource Area to be altered is in fact part of the habitat of the Rare Species.
 - That if the project alters Resource Area(s) within the habitat of a Rare Species:
 - The Rare Species is identified;
 - NHESP’s recommended changes or conditions necessary to ensure that the project will have no short or long term adverse effect on the habitat of the local population of the Rare Species is provided; or
 - An approved NHESP habitat management plan is attached with this Notice of Intent.



WPA Form 3 – Notice of Intent - Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Required Actions (310 CMR 10.11)

- Estimated Habitat Map of State-Listed Rare Wetlands Wildlife (continued)

Send the request for a preliminary determination to: Natural Heritage & Endangered Species Program, MA Division of Fisheries & Wildlife, 1 Rabbit Hill Road, Westborough, MA 01581

- Division of Fisheries and Wildlife – http://www.mass.gov/eea/agencies/dfg/dfw/

- Projects that involve silt-generating, in-water work that will impact a non-tidal perennial river or stream and the in-water work will not occur between May 1 and August 30.
Obtain a written determination from the Division of Fisheries and Wildlife (DFW) as to whether the proposed work requires a TOY restriction.
The proposed work does NOT require a TOY restriction.
The proposed work requires a TOY restriction. The DFW determination with TOY restriction and other conditions is attached.

- MassDEP Water Quality Certification

- Project involves dredging of 100 cubic yards or more in a Resource Area or dredging of any amount in an Outstanding Resource Water (ORW). A copy and proof of the MassDEP Water Quality Certification pursuant to 314 CMR 9.00 is attached to the NOI.
This project is a Combined Permit Application for 401 Dredging and Restoration (BRP WW 26).

- MassDEP Wetlands Restriction Order

Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A)?

- Yes No

- Department of Conservation and Recreation

Office of Dam Safety

- For Dam Removal Projects, obtain a written determination from the Department of Conservation and Recreation Office of Dam Safety that the dam is not subject to the jurisdiction of the Office under 302 CMR 10.00, a written determination that the dam removal does not require a permit under 302 CMR 10.00 or a permit authorizing the dam removal in accordance with 302 CMR 10.00 has been issued.

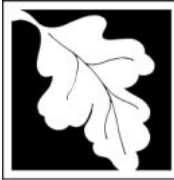
Areas of Critical Environmental Concern (ACECs)

Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

- Yes No If yes, provide name of ACEC.

Canoe River Aquifer ACEC

Name of ACEC



WPA Form 3 – Notice of Intent - Appendix A: Ecological Restoration Limited Project Checklists

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Minimum Required Documents (310 CMR 10.12)

Complete the Required Documents Checklist below and provide supporting materials before submitting a Notice of Intent Application for an Ecological Restoration Project.

- This Notice of Intent meets all applicable requirements outlined in for Ecological Restoration Projects in 310 CMR 10.12. Use the checklist below to insure that all documentation is included with the NOI.

At a minimum, a Notice of Intent for an Ecological Restoration Project shall include the following:

- Description of the project's ecological restoration goals;
The location of the Ecological Restoration Project;
Description of the construction sequence for completing the project;
A map of the Areas Subject to Protection Under M.G.L. c. 131, § 40, that will be temporarily or permanently altered by the project or include habitat for Rare Species, Habitat of Potential Regional and Statewide Importance.
The method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.) is attached with documentation methodology.

- List the titles and dates for all plans and other materials submitted with this NOI.

Project Narrative & Figures

a. Plan Title

Water & Wetland, LLC

b. Prepared by

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

- If there is more than one property owner, attach a list of property owners not listed on this form.
Attach NOI Wetland Fee Transmittal Form.
An evaluation of any flood impacts that may affect the built environment, including without limitation, buildings, wells, septic systems, roads or other man-made structures or infrastructure as well as any proposed flood impact mitigation measures;
A plan for invasive species prevention and control;
The Natural Heritage and Endangered Species Program written determination in accordance with 310 CMR 10.11(2), if needed;
Any Time of Year restrictions and/or other conditions recommended by the Division of Fisheries and Wildlife in accordance with 310 CMR 10.11(3), (4), (5), if needed;
Proof that notice was published in the Environmental Monitor as required by 310 CMR 10.11(1);
A certification by the applicant under the penalties of perjury that the project meets the eligibility criteria set forth in 310 CMR 10.13;
If the Ecological Restoration Project involves the construction, repair, replacement or expansion of infrastructure, an operation and maintenance plan to ensure that the infrastructure will continue to function as designed;



**WPA Form 3 – Notice of Intent - Appendix A:
Ecological Restoration Limited Project Checklists**
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Minimum Required Documents (310 CMR 10.12)

- If the project involves dredging of 100 cubic yards or more or dredging of any amount in an Outstanding Resource Water, a Water Quality Certification issued by the Department pursuant to 314 CMR 9.00;
- If the Ecological Restoration Project involves work on a stream crossing, information sufficient to make the showing required 310 CMR 10.53(8) for work in an inland resource area; and
- If the Ecological Restoration Project involves work on a stream crossing, baseline photo-points that capture longitudinal views of the crossing inlet, the crossing outlet and the upstream and downstream channel beds during low flow conditions. The latitude and longitude coordinates of the photo-points shall be included in the baseline data.
- This project is subject to provisions of the MassDEP Stormwater Management Standards. A copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) is attached.
- Provide information as to whether the project has the potential to impact private water supply wells including agricultural or aquacultural wells or surface water withdrawal points.

Certification that the Ecological Restoration Project Meets the Eligibility Criteria

I hereby certify under penalties of perjury that the Ecological Restoration Project Notice of Intent application does not meet the Eligibility criteria for an Ecological Restoration Order of Conditions set forth in 310 CMR 10.13, but does meet the Eligibility Criteria for a Ecological Restoration Limited Project set forth in 10.53(4).

I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

Signature of Applicant or Authorized Agent

Printed Name of Applicant or Authorized Agent

Date

The certification must be signed by the applicant; however, it may be signed by a duly authorized agent (named in Item 2) if this form is accompanied by a statement by the applicant designating the agent and agreeing to furnish upon request, supplemental information in support of the application.



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
 Foxborough Wetlands Protection Bylaw, Chapter 267



Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:
 Cocasset Lake _____ Foxborough _____
 a. Street Address b. City/Town

2. Applicant Mailing Address:
 John _____ Hage _____
 a. First Name b. Last Name
 Cocasset Lake Association _____
 c. Organization
 18 Woodland Road _____ Foxborough _____ MA _____ 02035
 d. Mailing Address e. City/Town f. State g. Zip Code
 617-686-3232 _____ john.hage@stifel.com _____
 h. Phone Number i. Fax Number j. Email Address

3. Property Owner (if different from Applicant):

 a. First Name b. Last Name

 c. Organization

 d. Mailing Address e. City/Town f. State g. Zip Code

 h. Phone Number i. Fax Number j. Email Address

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

B. Fees - Please see NOI Instructions before filling out worksheet.

Fees should be calculated using the following process and the worksheet on the next page.

Refer to Conservation Commission's website to download the Town and State Filing Fee Schedules:
https://www.foxboroughma.gov/departments/conservation/wetland_applications_guides

State Wetlands Protection Act (WPA) Filing Fee Instructions

Step 1/ Type of Activity: Describe each type of activity that will occur in a wetland resource area and/or buffer zone (the area within 100 feet of a wetland, or 200 feet of a river).

Step 2/ Number of Activities: Identify the number of each type of activity.

Step 3/ Individual Activity Fee:
 Identify each activity fee from the **six** project categories listed in the instructions.

Step 4/ Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount.

Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/ Total State Project Fee:
 Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6a-c/ Fee Payments (State):
 To calculate the state share of the fee, divide the total fee in half and subtract \$12.50.
 To calculate the town share of the fee, divide the total fee in half and add \$12.50.



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
 Foxborough Wetlands Protection Bylaw, Chapter 267



B. Fees (continued)

Town Bylaw Filing Fee Instructions

Step 1a/ Type of Activity:

Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2a/ Number of Activities: Identify the number of each type of activity.

Step 3a/ Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4a/ Subtotal Activity Fee: Multiply the number of activities (identified in Step 2a) times the fee per category (identified in Step 3a) to reach a subtotal fee amount. *Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.*

Step 5a/ Total Bylaw Project Fees:

Determine the total project fee by adding the subtotal amounts from Step 4a.

Step 6d/ Fee Payment (Bylaw): *Insert Step 5a fee payment amount.*

Type of Activity	Number of Activities	Individual Activity Fee	Subtotal Activity Fee
State Filing Fees: (Step 1)	(Step 2)	(Step 3)	(Step 4)
Cat 2e. Inland Limited Project	1	\$500.00	\$500.00
Total State Filing Fee: (Step 5)			\$500.00
Bylaw Filing Fees: (Step 1a)	(Step 2a)	(Step 3a)	(Step 4a)
Cat 2l. Any Other Activity	1	\$500.0	\$500.00
Total Bylaw Filing Fee: (Step 5a)			\$500.00
Filing Fee Payments: (Step 6)			
Total State Filing Fee:	(insert amount at right onto page 1, Section A.5.a of this NOI form)	\$500.00	a. Total State Fee from Step 5
State's share of filing fee: (Paid to State [Boston address])	(insert amount at right onto page 1, Section A.5.b. of this NOI form)	\$237.50	b. 1/2 of (a), above, less \$12.50
Town's share of filing fee: (Paid to Town of Foxborough)	(insert amount at right onto page 1, Section A.5.c. of this NOI form)	\$262.50	c. 1/2 of (a) above, plus \$12.50
Bylaw Filing Fee: (Paid to Town of Foxborough)	(insert amount at right onto page 1, Section A.5.d. of this NOI form)	\$500.00	d. Total Bylaw Fee from Step 5a



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
Foxborough Wetlands Protection Bylaw, Chapter 267



See Submittal Requirements and Instructions on the next page.

C. Submittal Requirements

For additional instructions, please refer to the Submittal Instructions on the last page (page 7) of the attached NOI Form (above).

a. **To Department of Environmental Protection:**

Complete pages 1 and 2 of this NOI Wetland Fee Transmittal Form and send with a check or money order for the **State share of the filing fee**, payable to the *Commonwealth of Massachusetts*.

Department of Environmental Protection
Box 4062
Boston, MA 02211

b. **To Foxborough Conservation Commission:**

Send the Notice of Intent or Abbreviated Notice of Intent; **one copy** of this form and the Town fee payments (one for **Bylaw fee and one for town's share of State fee**), payable to the *Town of Foxborough*.

Foxborough Conservation Commission
40 South Street
Foxborough, MA 02035

c. **To MassDEP Regional Office:**

Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment.

MassDEP, Southeast Regional Office
20 Riverside Drive
Lakeville, MA 02347

Water & Wetland, LLC

115 South St.
Upton, MA 01568
888-493-8526

53-7237/2113

1122

DATE March 19, 2022

PAY TO THE ORDER OF Town of Foxborough

\$ 500.00

FIVE HUNDRED AND 00/1.00

DOLLARS

UniBank

MEMO Cocasset Lake - Bylaw Fee



Void after 180 days

[Handwritten Signature]
AUTHORIZED SIGNATURE

Security features included. Details on back.

⑈001122⑈ ⑆211372378⑆ 26 0034104⑈

Water & Wetland, LLC

115 South St.
Upton, MA 01568
888-493-8526

53-7237/2113

1123

DATE March 19, 2022

PAY TO THE ORDER OF Town of Foxborough

\$ 262.50

TWO HUNDRED - SIXTY TWO 50/1.00

DOLLARS

UniBank

MEMO Cocasset Lake - WPA Fee, Town Portion



Void after 180 days

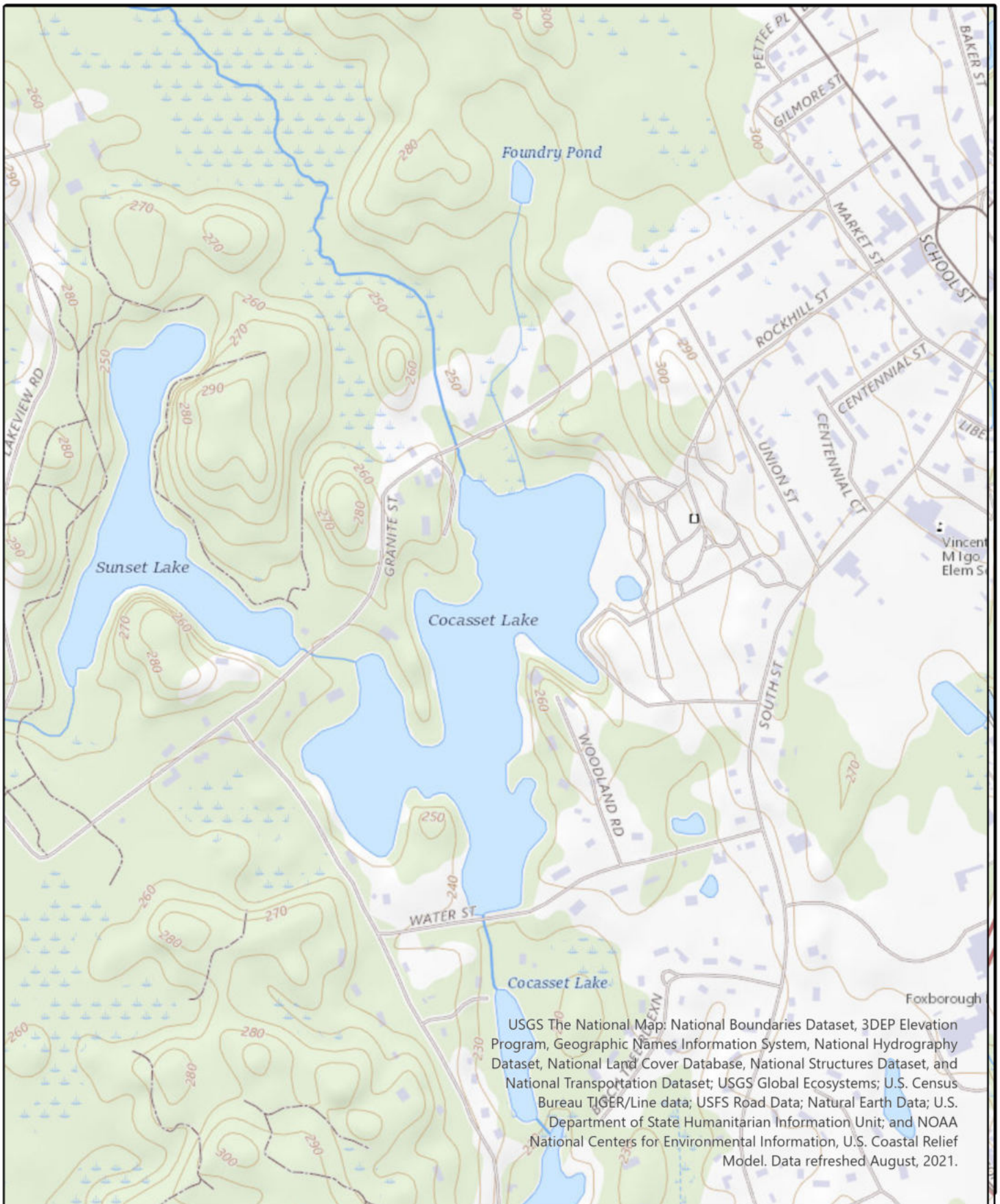
[Handwritten Signature]
AUTHORIZED SIGNATURE

Security features included. Details on back.

⑈001123⑈ ⑆211372378⑆ 26 0034104⑈

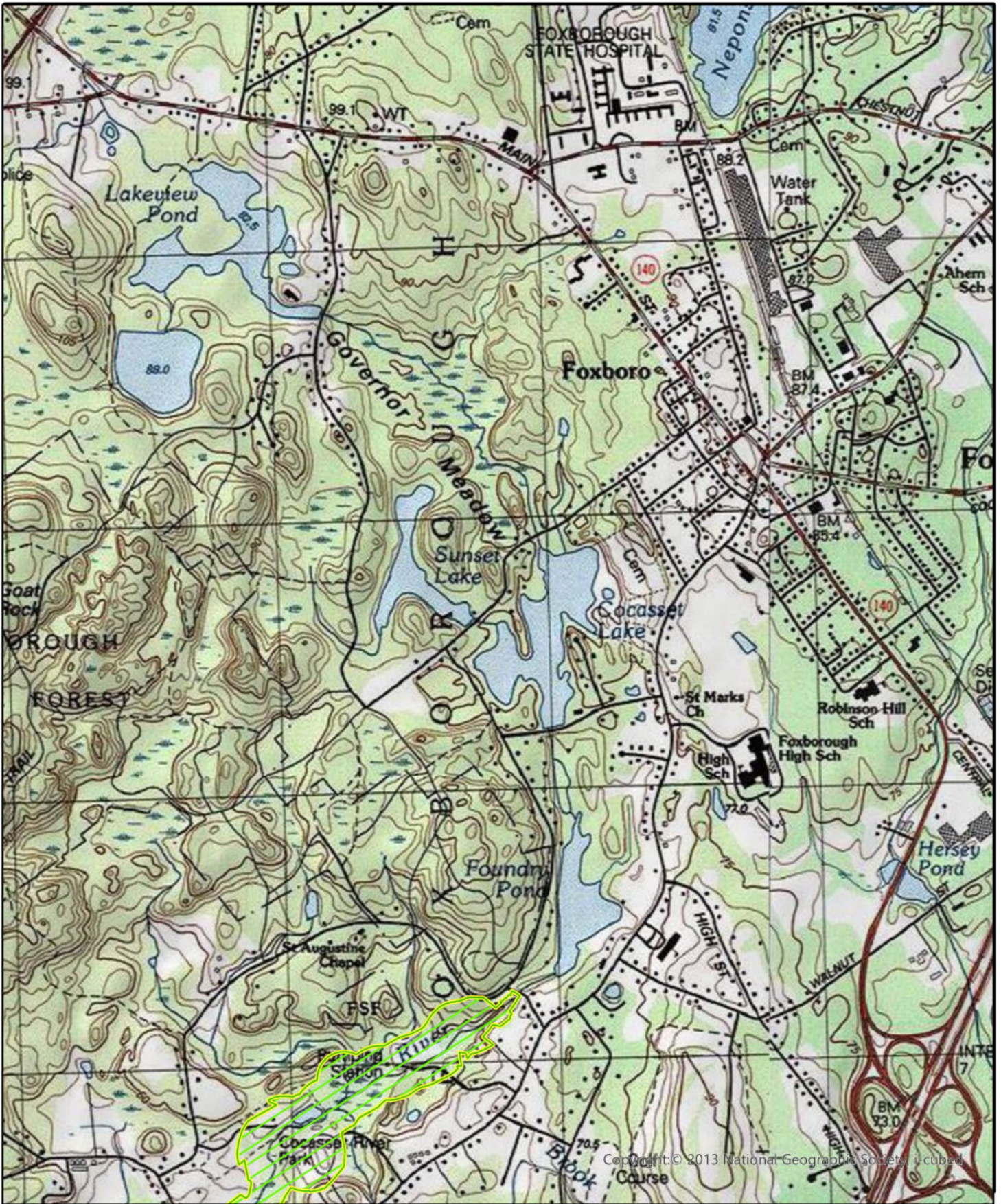
Figures

- Figure 1: USGS Locus Map
 - Figure 2: NHESP Program Habitats
- Figure 3: Invasive Species Distribution
- Figure 4: Native Species Distribution



Cocasset Lake
 Figure 1: USGS Locus Map
 Foxborough, MA

Survey Date
 9/4/21
Map Date
 2/8/22



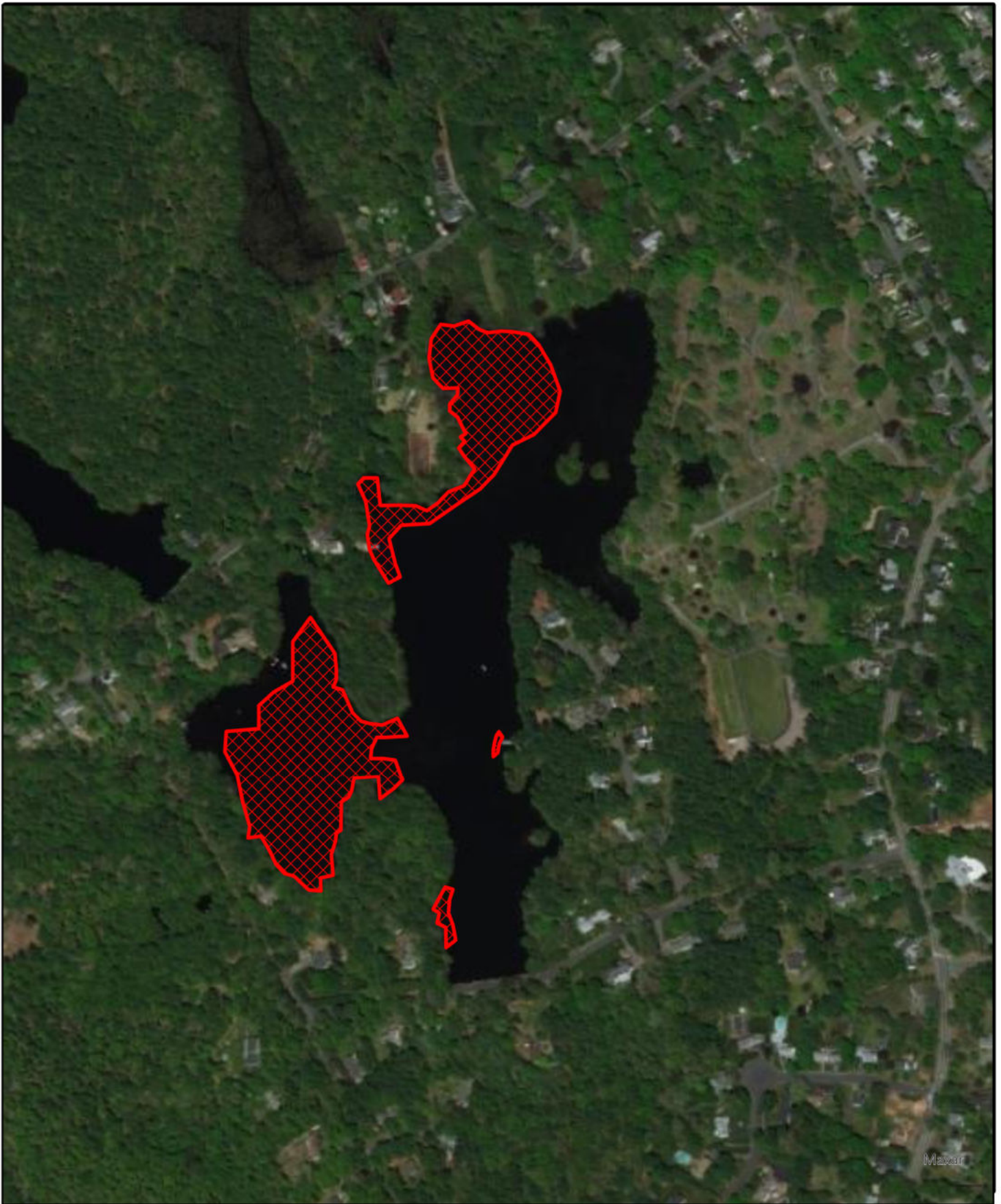
Copyright: © 2013 National Geographic Society. i-cubed



Cocasset Lake

Figure 2: NHESP Program Habitats
Foxborough, MA

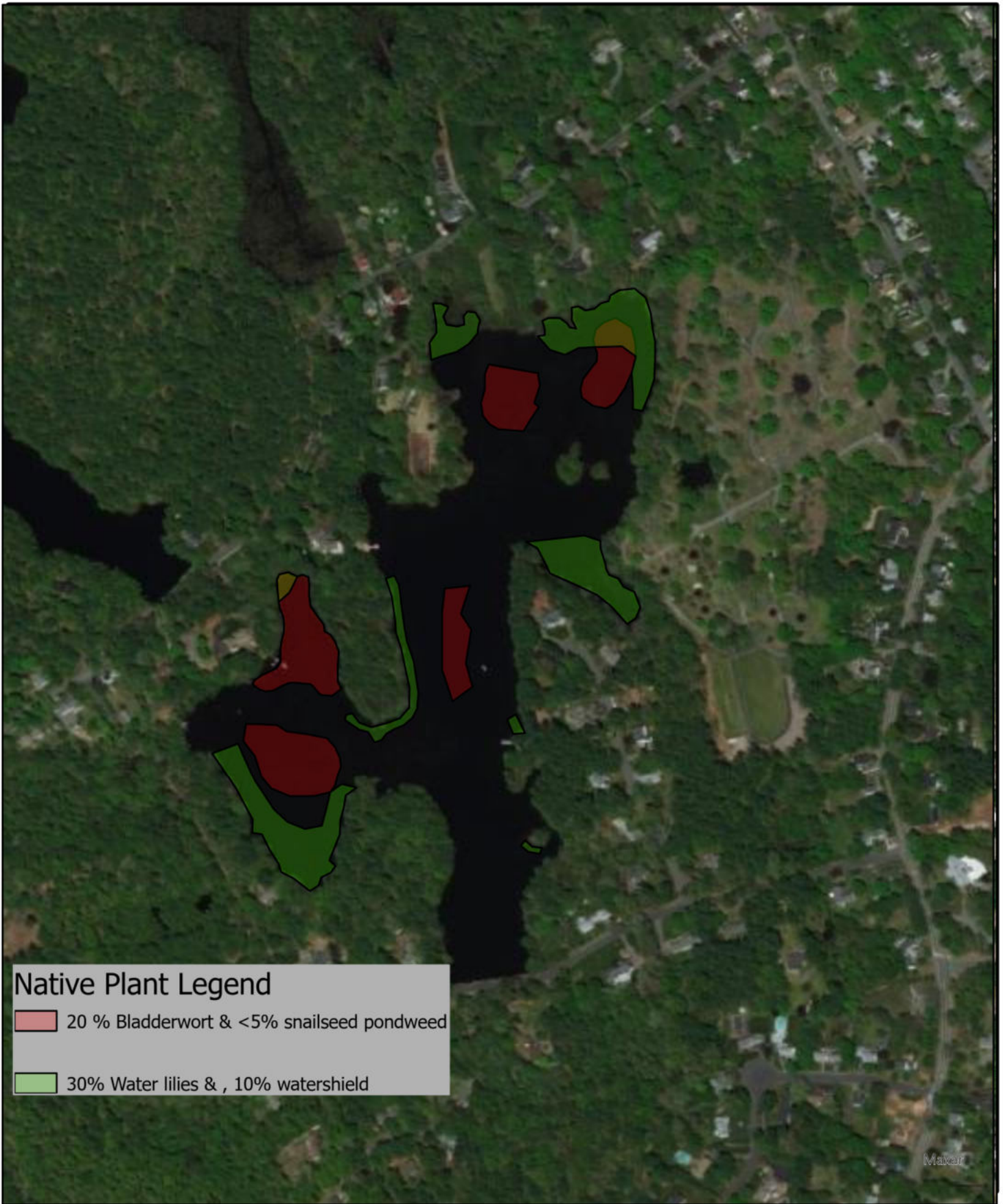
Survey Date
9/4/21
Map Date
2/8/22



Cocasset Lake

Figure 3: Invasive Species Distribution
Foxborough, MA

Survey Date
9/4/21
Map Date
2/8/22



Cocasset Lake

Figure 4: Native Species Distribution
Foxborough, MA

Survey Date
9/4/21
Map Date
2/8/22

Appendix A

- Environmental Monitor Publication
 - Abutter List

To: The Environmental Monitor

From: Water & Wetland, LLC

Date: January 17, 2022

Re: Notification of filing a Notice of Intent (NOI) for Cocasset Lake

Anticipated Date of Submission: February 18, 2022

The proposed project is seeking approval to implement an Aquatic Plant Management Program at Cocasset Lake in Foxborough, MA. The program will focus on the reduction and control of nuisance and invasive aquatic vegetation through manual removal and/or the use of USEPA/MA registered aquatic herbicides and algaecides. The project aims to protect the interests of the Wetlands Protection Act by slowing eutrophication and improving habitat value.

Reviewing Conservation Commission:

Foxborough Conservation Commission
Town Hall – Room 204
40 South Street
Foxborough, MA 02035

Copies of the Notice of Intent may be examined or acquired by contacting the applicant's representative, Water & Wetland, LLC at info@waterandwetland.com, or 888-493-8526.

Please see Conservation Commission website for the meeting schedule to confirm exact dates and agendas.

AFFIDAVIT OF SERVICE

I, _____ Colin Gosselin _____, hereby certify under the pains and penalties of perjury that, on ___3/21/2022_____ (date), I gave Notification to Abutters in compliance with the second paragraph of the Massachusetts General Laws, Chapter 131, Section 40 and the DEP Guide to Abutter Notification in connection with the following matter:

A Notice of Intent application was filed under the Massachusetts Wetlands Protection Act and the Foxborough Wetlands Protection Bylaw, Chapter 267 (formerly Article IX) with the Foxborough Conservation Commission by __Cocasset Lake Association (Applicant) / Water & Wetland, LLC (Representative)_____ on ___3/18/2022_____ (date) for the property located at _Water Street_____ (address), Foxborough, Massachusetts (Assessor's map _091_____, parcel(s) __052_____).

The form of notification and the list of abutters to whom it was given and their addresses are attached to this Affidavit of Service.

Signature



Date

3/14/2022

RECEIVED
BOARD OF ASSESSORS
JAN 31 2022
TOWN OF FOXBOROUGH



BOARD OF ASSESSORS
TOWN OF FOXBOROUGH
40 SOUTH STREET
FOXBOROUGH MASSACHUSETTS 02035

(508) 543-1215

Fax: (508) 543-6278

CERTIFICATION OF ABUTTERS

PROPERTY OWNER: Cocasset Lake Association
MAILING ADDRESS: 18 Woodland Road, Foxborough, MA 02035
PROPERTY LOCATION: Water Street
ASSESSORS MAP/PARCEL: 091/052 (PID 3583)
APPLICANT: Cocasset Lake Association PHONE: 617-686-3232
AUTHORITY REQUESTING LIST: Water & Wetland, LLC (508-250-6238)
DATE SUBMITTED: 1/11/2022
LIST REQUESTED: 500 FT 300 FT 100FT ABUTTER TO ABUTTER

I, Sarah Saretta, acting as a custodian of assessment records, do hereby certify that the attached documents contain true and complete information from the most recent tax list of the Town of Foxborough, Massachusetts.

I further state that these documents include the names and addresses of abutters to the abutters Water Street Map: 091 Parcel: 052

Date: January 31, 2022

BOARD OF ASSESSORS
FOXBOROUGH MASSACHUSETTS

Massachusetts General Law c. 40A, s.11, "The assessors maintaining any applicable tax list shall certify to the permit granting authority or special permit granting authority the names and addresses of parties in interest and such certification shall be conclusive for all purposes."

The Assessors Office will complete the abutters list within 7-10 business days. There is a \$25.00 fee for an abutters list.

"The applicant is solely responsible for requesting the appropriate abutters list required by the applicable Mass General Law."

WATER STREET, FOXBOROUGH, MA 02035
 091/052 (100 FEET)
 01/31/2022

Parcel Number	Property Address	Owner Name	Owner Address	Owner City	Owner State	Owner Zip
090/008	76 GRANITE STREET	BEARCE MATTHEW A & CRIMMINS STEPHANIE M	76 GRANITE ST	FOXBORO	MA	02035
091/006	SOUTH STREET	FOXBOROUGH CEMETERY CORP	P. O. BOX 365	FOXBOROUGH	MA	02035
091/048	48 GRANITE STREET	STACY BRANDON CHARLES & MORGAN MARIE TE	48 GRANITE ST	FOXBORO	MA	02035
091/049	50 GRANITE STREET	GREINER ELLEN A & PAUL T TE	50 GRANITE ST	FOXBOROUGH	MA	02035
091/051	GRANITE STREET	GREINER ELLEN A & PAUL T TE	50 GRANITE ST	FOXBOROUGH	MA	02035
091/053	GRANITE STREET	HUSSAIN RIAZ & RANI N F TE	1 GRANITE TER	FOXBORO	MA	02035
091/054	GRANITE STREET	HUSSAIN RIAZ & RANI N F TE	1 GRANITE TER	FOXBOROUGH	MA	02035
091/055	3 GRANITE TERRACE	MCLAUGHLIN LAURA	3 GRANITE TERRACE	FOXBOROUGH	MA	02035
091/056	1 GRANITE TERRACE	HUSSAIN RIAZ & RANI N F TE	1 GRANITE TER	FOXBORO	MA	02035
091/057	60 GRANITE STREET	LORD BEVERLEY	60 GRANITE ST	FOXBORO	MA	02035
091/060	70 GRANITE STREET	HICKS CHRISTOPHER E & E M MCSWEENEY TE	70 GRANITE ST	FOXBORO	MA	02035
091/062	59 GRANITE STREET	BAKER JOHN H & ELIZABETH G	59 GRANITE STREET	FOXBOROUGH	MA	02035
091/063	55 GRANITE STREET	SPILLANE FRANCES C	55 GRANITE ST	FOXBOROUGH	MA	02035
104/003	PROSPECT STREET	LEWICKE JOSEPH J TRUSTEE	25 PROSPECT STREET	FOXBOROUGH	MA	02035
104/004	106 GRANITE STREET	BROWN ROBERT J JR & TIFFANY D TE	106 GRANITE ST	FOXBORO	MA	02035
104/018	80 GRANITE STREET	MARTYNAK KATHLEEN A	80 GRANITE STREET	FOXBOROUGH	MA	02035
104/019	98 GRANITE STREET	STILWELL RICHARD BARTON & FRANCES E	98 GRANITE STREET	FOXBORO	MA	02035
104/020	100 GRANITE STREET	CALISDIAN DAVID C & BARBARA J	100 GRANITE ST	FOXBORO	MA	02035
104/021	18 PROSPECT STREET	GILBY ANTHONY C & JUNE M	18 PROSEPC T ST	FOXBORO	MA	02035
104/022	22 PROSPECT STREET	RUEST STEPHANIE & JEREMY JENKINS TE	22 PROSPECT STREET	FOXBOROUGH	MA	02035
105/021	24 WATER STREET	HYLAND BRADLEY P & CHRISTINE F TE	24 WATER STREET	FOXBOROUGH	MA	02035
105/023	30 WATER STREET	BRADNER SCOTT TR	30 WATER ST	FOXBORO	MA	02035
105/026	WATER STREET	MCAULIFFE BRUCE L ET AL	80 SPRUCE STREET	FOXBORO	MA	02035
105/027	31 WATER STREET	MCAULIFFE BRUCE L ET AL	80 SPRUCE STREET	FOXBORO	MA	02035
105/028	19 WATER STREET	CARROLL PAUL T & SANDRA J TE	19 WATER STREET	FOXBOROUGH	MA	02035

105/029	15 WATER STREET	POND RICHARD BRADFORD & ALYSON JOY TE	15 WATER ST	FOXBORO	MA	02035
105/030	6 WOODLAND ROAD	FITZGERALD TERENCE K & PATRICIA M TE	6 WOODLAND RD	FOXBORO	MA	02035
105/031	10 WOODLAND ROAD	CRIST JOSEPH H & MARGARET A TRUSTEES	10 WOODLAND ROAD	FOXBOROUGH	MA	02035
105/032	WATER STREET	COCASSET LAKE ASSOCIATION	18 WOODLAND RD	FOXBORO	MA	02035
105/033	22 WOODLAND ROAD	COCASSET LAKE ASSOCIATION	18 WOODLAND ROAD	FOXBOROUGH	MA	02035
105/034	14 WOODLAND ROAD	LYNCH TIMOTHY F & SANDRA A TE	14 WOODLAND ROAD	FOXBOROUGH	MA	02035
105/035	18 WOODLAND ROAD	HAGE JOHN L & LYDIA CIARALLO TE	18 WOODLAND ROAD	FOXBOROUGH	MA	02035
105/036	20 WOODLAND ROAD	LOWRIE JAMES M & ELIZABETH A TRS	20 WOODLAND ROAD	FOXBOROUGH	MA	02035
105/037	15 WOODLAND ROAD	LYNCH FRANCIS S & KATHLEEN M TE	15 WOODLAND RD	FOXBORO	MA	02035

Appendix B

- Product Labels / SDS

SPECIMEN LABEL

ProcellaCOR™ EC

A selective systemic herbicide for management of freshwater aquatic vegetation in slow-moving/quiescent waters with little or no continuous outflow: ponds, lakes, reservoirs, freshwater marshes, wetlands, bayous, drainage ditches, and non-irrigation canals, including shoreline and riparian areas in or adjacent to these sites. Also for management of invasive freshwater aquatic vegetation in slow-moving/quiescent areas of rivers (coves, oxbows or similar sites).

FLORPYRAUXIFEN-BENZYL GROUP 4 HERBICIDE

Produced for:

SePRO Corporation
11550 North Meridian Street, Suite 600
Carmel, IN 46032, U.S.A.

ProcellaCOR, Prescription Dose Unit, and PDU are trademarks of SePRO Corporation



EPA Reg. No. 67690-80
FPL20180226

Active Ingredient:

Florpyrauxifen-benzyl: 2-pyridinecarboxylic acid, 4-amino-3-chloro-6-(4-chloro-2-fluoro-3-methoxyphenyl)-5-fluoro-, phenyl methyl ester 2.7%

Other Ingredients: 97.3%

TOTAL: 100.0%

Contains 0.0052 lb florpyrauxifen-benzyl per Prescription Dose Unit™ (PDU™) or 0.21 lb florpyrauxifen-benzyl/gallon. 1 PDU is equal to 3.2 fl. oz. of product.

Keep Out of Reach of Children

CAUTION

Refer to the inside of label booklet for additional precautionary information including directions for use.

Notice: Read the entire label before using. Use only according to label directions. **Before buying or using this product, read Warranty Disclaimer and Misuse statements inside label booklet. If terms are not acceptable, return at once unopened.**

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION. Causes moderate eye irritation. Avoid contact with 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.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants;
- Shoes plus socks;
- Protective eyewear; and
- Waterproof gloves.

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.

Engineering Controls: When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(5)], the handler PPE requirements may be reduced or modified as specified in the WPS.

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. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

FIRST AID

If in eyes	<ul style="list-style-type: none">• 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.
-------------------	--

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. In case of emergency endangering health or the environment involving this product, call **INFOTRAC** at **1-800-535-5053**.

Environmental Hazards

Under certain conditions, treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants, which may cause fish suffocation. Water bodies containing very high plant density should be treated in sections to prevent the potential suffocation of fish. Consult with the State agency for fish and game before applying to public waters to determine if a permit is needed.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

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 requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Shake well before using.

PRODUCT INFORMATION

ProcellaCOR EC is a selective systemic herbicide for management of freshwater aquatic vegetation in slow-moving/quiescent waters with little or no continuous outflow: ponds, lakes, reservoirs, freshwater marshes, wetlands, bayous, drainage ditches, and non-irrigation canals, including shoreline and riparian areas in or adjacent to these sites. Also for management of invasive freshwater aquatic vegetation in slow-moving/quiescent areas of rivers (coves, oxbows or similar sites).

Apply ProcellaCOR EC directly into water or spray onto emergent foliage of aquatic plants. Depending upon method of application and target plant, ProcellaCOR EC is absorbed by aquatic vascular plants through emergent or floating leaves and from water through submersed plant shoots and leaves. In-water treatments are effective in spot and partial treatment designs with relatively short exposure times (hours to several days). Species susceptibility to ProcellaCOR EC may vary depending upon time of year, stage of growth, and water movement. For best results, apply to actively growing plants. However, effective control can be achieved over a broad range of growth stages and environmental conditions. Application to mature target plants may require higher application rates and longer exposure periods to achieve control.

Resistance Management

ProcellaCOR EC is classified as a WSSA Group 4 Herbicide (HRAC Group O). Weed populations may contain or develop biotypes that are resistant to ProcellaCOR EC and other Group 4 herbicides. If herbicides with the same mode of action are used repeatedly at the same site, resistant biotypes may eventually dominate the weed population and may not be controlled by these products. Unless ProcellaCOR EC is used as part of an eradication program or in a plant management system where weed escapes are aggressively controlled, do not use ProcellaCOR EC alone in the same treatment area for submersed and emergent plant control for more than 2 consecutive years, unless used in combination or rotated with an herbicide with an alternate mode of action.

To further delay herbicide resistance consider taking one or more of the following steps:

- Use tank mixtures with herbicides from a different group if such use is permitted; Consult your local extension service or SePRO Corporation if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use, and that considers other management practices.
- Scout after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by using an alternative herbicide from a different group or by a mechanical method that minimizes plant fragmentation.
- If a weed pest population continues to progress after treatment with this product, switch to another management strategy or herbicide with a different mode of action, if available.
- Contact your local extension specialist or SePRO Corporation for additional pesticide resistance-management and/or integrated weed-management recommendations for specific weed biotypes.

Stewardship Guidelines For Use

Apply this product in compliance with Best Management Practices (BMP) that include site assessment, prescription, and implementation. BMP have been developed to ensure accurate applications, minimize risk of resistance development, and monitor concentrations in water to document levels needed for optimal performance and manage potential irrigation use. SePRO Corporation will work with applicators and resource managers to implement BMP for application and monitoring to meet management objectives and ensure compatibility with potential water uses.

Use Precautions

- There are no restrictions for recreational purposes, including swimming and fishing.

Use Restrictions

- **Obtain Required Permits:** Consult with appropriate state or local water authorities before applying this product to public waters. State or local public agencies may require permits.
- **Chemigation:** Do not apply this product through any type of irrigation system.
- For in-water applications, the maximum single application rate is 25.0 Prescription Dose Units (PDU) per acre-foot of water with a limit of three applications per year.
- For aquatic foliar applications, do not exceed 10.0 PDU per acre for a single application, and do not apply more than 20.0 PDU total per acre per year.
- To minimize potential exposure in compost, do not allow livestock to drink treated water.
- Do not compost any plant material from treated area.
- Allow 14 days or greater between applications.
- Do not use water containing this product for hydroponic farming.
- Do not use treated water for any form of irrigation, except as described in the Application to *Water Used for Irrigation on Turf and Landscape Vegetation* section.
- Do not use for greenhouse or nursery irrigation.
- Make applications in a minimum of 10 gallons per acre (GPA) for ground and a minimum of 15 gallons per acre (GPA) for aerial applications.
- Do not apply to salt/brackish water.
- Do not apply ProcellaCOR EC directly to, or otherwise permit ProcellaCOR EC to come into contact during an application, with carrots, soybeans, grapes, tobacco, vegetable crops, flowers, ornamental shrubs or trees, or other desirable broadleaf plants, as serious injury may occur. Do not permit spray mists containing ProcellaCOR EC to drift onto desirable broadleaf plants. Further information on spray drift management is provided in the *Spray Drift Management* section of this label.
- For treatments out of water, do not permit spray mists containing this product to drift onto desirable broadleaf plants as injury may occur. Further information on spray drift management is provided in the *Spray Drift Management* section of this label.
- Do not allow tank mixes of ProcellaCOR EC to sit overnight. See additional tank mix restrictions below.
- Do not use organosilicone surfactants in spray mixtures of this product.
- Do not tank mix this product with malathion or methyl parathion.
- Do not make an application of malathion or methyl parathion within 7 days of an application of this product. See additional tank mix restrictions below.

Application to Water Used for Irrigation on Turf and Landscape Vegetation

To reduce the potential for injury to sensitive vegetation, follow the waiting periods (between application and irrigation) and restrictions below, and inform those who irrigate with water from the treated area. Follow local and state requirements for informing those who irrigate.

When monitoring ProcellaCOR EC concentrations, analyze water samples using an appropriate analytical method for both the active ingredient and the acid form. Use of HPLC (High-Performance Liquid Chromatography), which is also referenced as FasTEST®, is recommended.

Applications to invasive freshwater aquatic vegetation in slow-moving/quiescent areas of rivers (coves, oxbows or similar sites).

- Users must be aware of relevant downstream use of water for irrigation that may be affected by the treatment and must ensure all label restrictions are followed. All potential downstream water intakes with irrigation practices that may be affected by the treatment must be documented and affected irrigation users notified of the restrictions associated with such treatment.

Residential and other Non-Agricultural Irrigation (such as shoreline property use including irrigation of residential landscape plants and homeowner gardens, golf course irrigation, and non-residential property irrigation around business or industrial properties. Excludes greenhouse or nursery irrigation).

- Turf Irrigation: Turf may be irrigated immediately after treatment.
- For irrigation of landscape vegetation or other forms of non-agricultural irrigation not excluded above, conduct one of the following:
 - o analytically verify that water contains less than 2 ppb (SePRO recommends use of FasTEST); or
 - o if treated area(s) have the potential to dilute with untreated water, follow the precautionary waiting periods described in the tables 1 and 2 below for in-water or foliar application.

TABLE 1: Non-agricultural irrigation following in-water application

Waiting Period (Days) for Irrigation at Specific Target Treatment Rates (PDU per acre-foot)						
Percent Area of Waterbody Treated*	1-3 PDU	>3-5 PDU	>5.0 to 10.0 PDU	>10.0 to 15.0 PDU	>15.0 to 20.0 PDU	>20.0 to 25.0 PDU
2% or less	6 hours	1 day	1 day	2 days	2 days	3 days
3 - 10%	1 day	3 days	5 days	7 days	10 days	14 days
11 - 20%	3 days	7 days	10 days	10 days	14 days	21 days
21 - 30%	5 days	10 days	14 days	21 days	28 days	35 days
>30%	7 days	14 days	21 days	28 days	35 days	35 days

* Assumes treated area(s) have the potential to dilute with untreated water. If the treated area is not projected to dilute rapidly (example: confined cove area), utilize FasTEST to confirm below 2 ppb or verify vegetation tolerance before irrigation use. Consult a SePRO Aquatic Specialist for additional site-specific recommendations.

TABLE 2: Non-agricultural irrigation following foliar application

Waiting Period (days) for Irrigation at Specific Target Treatment Rates		
Percent Area of Waterbody Treated*	5.0 PDU / acre	>5.0 to 10.0 PDU / acre
10% or less	0.5 day	1 day
11 - 20%	1 day	2 days
>20%	2 days	3 days

* Assumes treated area(s) have the potential to dilute with untreated water. If the treated area is not projected to dilute rapidly (example: confined cove area), utilize FasTEST to confirm below 2 ppb or verify vegetation tolerance before irrigation use. Consult a SePRO Aquatic Specialist for additional site-specific recommendations.

Susceptible Plants

Do not apply where spray drift may occur to food, forage, or other plantings that might be damaged. Spray drift may damage or render crops unfit for sale, use or consumption. Small amounts of spray drift that may not be visible may injure susceptible broadleaf plants. **Before making a foliar or surface spray application, please refer to your state's sensitive crop registry (if available) to identify any commercial specialty or certified organic crops that may be located nearby. At the time of a foliar or surface spray application, the wind cannot be blowing toward adjacent cotton, carrots, soybeans, corn, grain sorghum, wheat, grapes, tobacco, vegetable crops, flowers, ornamental shrubs or trees, or other desirable broadleaf plants.**

Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determines the potential for spray drift. The applicator is responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to limit off-target drift movement from aerial applications:

Aerial Application:

- Aerial applicators must use a minimum finished spray volume of 15 gallons per acre.
- Drift potential is lowest between wind speeds of 2 to 10 mph. Do not apply below 2 mph due to variable wind direction and high potential for temperature inversion. Do not apply in wind speeds greater than 10 mph.
- To minimize spray drift from aerial application, apply with a nozzle class that ensures coarse or coarser spray (according to ASABE S572) at spray boom pressure no greater than 30 psi.
- The distance of the outer most operating nozzles on the boom must not exceed 70% of wingspan or 80% of rotor diameter.
- Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.
- Do not apply under conditions of a low-level air temperature inversion.
- The maximum release height must be 10 feet from the top of the weed canopy, unless a greater application height is required for pilot safety.

Evaluate spray pattern and droplet size distribution by applying sprays containing a water-soluble dye marker or appropriate drift control agents over a paper tape (adding machine tape). Mechanical flagging devices may also be used. Do not apply under conditions of a low-level air temperature inversion. A temperature inversion is characterized by little or no wind and lower air temperature near the ground than at higher levels. The behavior of smoke generated by an aircraft-mounted device or continuous smoke column released at or near site of application will indicate the direction and velocity of air movement. A temperature inversion is indicated by layering of smoke at some level above the ground and little or no lateral movement.

Ground Application

- Ground applicators must use a minimum finished spray volume of 10 gallons per acre.
- To minimize spray drift from ground application, apply with a nozzle class that ensures coarse or coarser spray (according to ASABE S572).
- For boom spraying, the maximum release height is 36 inches from the soil for ground applications.
- Where states have more stringent regulations, they must be observed.

The applicator should be familiar with, and take into account the information covered in the following Aerial Drift Reduction Advisory (this information is advisory in nature and does not supersede mandatory label requirements.)

Aerial Drift Reduction Advisory

Information on Droplet Size: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Controlling Droplet Size:

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's specified pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the air stream produces larger droplets than other orientations. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length: To further reduce drift without reducing swath width, boom must not exceed 70% of wingspan or 80% of rotor diameter.

Application Height: Do not make applications at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment: When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

Wind: Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Do not make applications below 2 mph due to variable wind direction and high inversion potential. Do not apply in wind speeds greater than 10 mph. Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions: Do not apply during a local, low level temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of the 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.

USE DIRECTIONS

ProcellaCOR EC performance and selectivity may depend on dosage, time of year, stage of growth, method of application, and water movement.

Aquatic Plants Controlled: In-Water Application

Table 3 lists the expected susceptible species under favorable treatment conditions for aquatic plant control. Use of lower rates will increase selectivity on some species listed. Consultation with SePRO Corporation is recommended before applying ProcellaCOR EC to determine best in-water treatment protocols for given target vegetation.

TABLE 3. Vascular aquatic plant control with in-water application

Vascular Aquatic Plants Controlled: In-Water Application	
Common name	Scientific name
Floating Plants	
Mosquito fern	<i>Azolla</i> spp.
Water hyacinth	<i>Eichhornia crassipes</i>
Emerged Plants	
Alligatorweed	<i>Alternanthera philoxeroides</i>
American lotus	<i>Nelumbo lutea</i>
Floating heart	<i>Nymphoides</i> spp.
Water pennywort	<i>Hydrocotyle umbellata</i>
Water primrose	<i>Ludwigia</i> spp.
Watershield	<i>Brasenia schreberi</i>
Submersed Plants	
Bacopa	<i>Bacopa</i> spp.
Coontail ¹	<i>Ceratophyllum demersum</i>
Hydrilla ¹	<i>Hydrilla verticillata</i>
Parrotfeather	<i>Myriophyllum aquaticum</i>
Water chestnut	<i>Trapa</i> spp.
Watermilfoil, Eurasian	<i>Myriophyllum spicatum</i>
Watermilfoil, Hybrid Eurasian	<i>Myriophyllum spicatum X M.</i> spp.
Watermilfoil, Variable	<i>Myriophyllum heterophyllum</i>

¹ Higher-rate applications within the specified range may be required to control less-sensitive weeds.

Aquatic Plants Controlled: Foliar Application

Table 4 lists the expected susceptible species using labeled foliar rates (5.0 – 10.0 PDU per acre) under favorable treatment conditions for aquatic plant control. Use higher rates in the rate range on more established, dense vegetation. Consultation with SePRO Corporation is recommended before applying ProcellaCOR EC to determine best foliar treatment protocols for given target vegetation.

TABLE 4. Vascular aquatic plant control with foliar application

Vascular Aquatic Plants Controlled: Foliar Application	
Common name	Scientific name
Floating Plants	
Mosquito fern	<i>Azolla</i> spp.
Water hyacinth	<i>Eichhornia crassipes</i>
Emerald Plants	
Alligatorweed	<i>Alternanthera philoxeroides</i>
American lotus	<i>Nelumbo lutea</i>
Floating heart	<i>Nymphoides</i> spp.
Parrotfeather (emersed)	<i>Myriophyllum aquaticum</i>
Water pennywort	<i>Hydrocotyle umbellata</i>
Water primrose	<i>Ludwigia</i> spp.
Watershield	<i>Brasenia schreberi</i>

APPLICATION INFORMATION

Mixing Instructions

In-Water Application to Submersed or Floating Aquatic Weeds

ProcellaCOR EC can be applied undiluted or diluted with water for in-water applications. To dilute with water, it is recommended to fill the spray tank to one-half full with water. Start agitation. Add correct quantity of ProcellaCOR EC. Continue agitation while filling spray tank to required volume and during application.

Foliar Application to Floating and Emergent Weeds

Dilute ProcellaCOR EC with water to achieve proper coverage of treated plants. To dilute with water, it is recommended to fill spray tank to one-half full with water. Start agitation. A surfactant must be used with all post-emergent foliar applications. Use only surfactants that are approved or appropriate for aquatic use. For best performance, a methylated seed oil (MSO) surfactant is recommended. Read and follow all use directions and precautions on aquatic surfactant label. After adding ProcellaCOR EC and surfactant, continue agitation while filling spray tank to required volume and during application.

TANK-CLEANOUT INSTRUCTIONS

ProcellaCOR EC should be fully cleaned from application equipment prior to use for other applications. Contact a SePRO Aquatic Specialist for guidance on methods for thorough cleaning of application equipment after use of the product.

APPLICATION METHODS

In-Water Application to Submersed or Floating Aquatic Weeds

ProcellaCOR EC can be applied via trailing hose, by sub-surface injection, or surface spray as an in-water application to control weeds such as hydrilla, floating heart, water hyacinth, and other susceptible weed species. This product has relatively short exposure requirements for in-water treatments (hours to days), but treatments with high exchange and short exposure periods should be carefully planned to achieve best results. Where greater plant selectivity is desired - such as when controlling hydrilla or other more susceptible species, choose a lower dose in the specified range. A SePRO Aquatic Specialist can provide site-specific prescriptions for optimal control based on target weed, management objectives, and site conditions.

Apply ProcellaCOR EC to the treatment area at a prescription dose unit (PDU) to achieve appropriate concentrations. A PDU is a unit of measure that facilitates the calculation of the amount of product required to control target plants in 1 acre-foot of water or 1 acre for foliar applications. Per Table 5 below, 1-25 PDU are needed to treat 1 acre-foot of water, depending on target species and the percent of waterbody to be treated.

Use Table 5 to select the dose needed to treat 1 acre-foot of water.

TABLE 5: Prescription Dose Units (PDU) per acre-foot of water***

Percent Area of Waterbody Treated	Target Species			
	Eurasian Watermilfoil	Hybrid Watermilfoil	Variable Leaf Watermilfoil	Other
≤ 2%	3 - 4	4 - 5	3 - 5	3 - 25
>2 - 10%	2 - 3	3 - 5	3 - 4	3 - 20
>10 - 20%	1 - 3	3 - 4	2 - 4	3 - 15
>20 - 30%	1 - 2	2 - 3	2 - 3	2 - 10
>30%	1 - 2	2 - 3	1 - 2	1 - 5

* In all cases, user may apply up to the maximum of 25 PDU per acre-foot. Consult your SePRO Aquatics Specialist for site-specific recommendations.

** 1 PDU contains 3.17 fl. oz. of product.

To calculate the amount of product needed in fluid ounces, use the formula below:

$$\text{Number of acres} \times \text{average depth (feet)} \times \text{PDU} \times 3.17 = \text{fluid ounces}$$

*: from Table 5

Example Calculation:

To control hybrid watermilfoil in 2 acres of a 5-acre lake (>30% treated) with an average depth of 2 feet:
 $2 \text{ acres} \times 2 \text{ feet} \times 3 \text{ PDU} \times 3.17 = 38.04 \text{ fl. oz.}$

For in-water applications, the maximum single application is 25.0 PDU / acre-foot, with a limit of three applications per year. Allow 14 days or greater between applications. Product may be applied as a concentrate or diluted with water prior to or during the application process. Use an appropriate application method that ensures sufficiently uniform application to the treated area.

Foliar Application to Floating and Emergent Weeds

Apply ProcellaCOR EC as a foliar application to control weeds such as water hyacinth, water primrose, and other susceptible floating and emergent species. Use an application method that maximizes spray interception by target weeds while minimizing the amount of overspray that inadvertently enters the water.

For all foliar applications, apply ProcellaCOR EC at 5.0 to 10.0 PDU per acre. Use of a surfactant is required for all foliar applications of ProcellaCOR EC. Use only surfactants that are approved or appropriate for aquatic use. Methylated seed oil (MSO) is a recommended surfactant and is typically applied at 1.0% volume/volume. Refer to the surfactant label for use directions. For best results, apply to actively growing weeds. ProcellaCOR EC may be applied more than once per growing season to meet management objectives. Do not exceed 10.0 PDU per acre during any individual application or 20.0 PDU total per acre, per year from all combined treatments.

Foliar Spot Treatment

To prepare the spray solutions, thoroughly mix ProcellaCOR EC in water at a ratio of 5.0 to 10.0 PDU per 100 gallons (0.12 to 0.24% product) plus an adjuvant. For best results, a methylated seed oil at 1% volume/volume is the recommended spray adjuvant. When making spot application, ensure spray coverage is sufficient to wet the leaves of the target vegetation but not to the point of runoff.

Aerial Foliar Application to Floating and Emergent Weeds

Apply ProcellaCOR EC in a spray volume of 15 gallons per acre (GPA) or more when making a post-emergence application by air. Apply with coarse to coarser droplet category per S-572 ASABE standard; see NAAA, USDA or nozzle manufacturer guidelines. Follow guidelines and restrictions in the *Spray Drift Management and Aerial Drift Reduction Advisory* sections to minimize potential drift to off-target vegetation. Aircraft should be patterned per Operation Safe/PAASS program for calibration and uniformity to provide sufficient coverage and control.

Boat or Ground Foliar Application to Floating and Emergent Weeds

When applying ProcellaCOR EC by boat or with ground equipment to emergent or floating-leaved vegetation, use boom-type, backpack or hydraulic handgun equipment. Apply ProcellaCOR EC in a sufficient spray volume (e.g. 20 to 100 gpa) to provide accurate and uniform distribution of spray particles over the treated vegetation while minimizing runoff. Use higher spray volumes for medium to high density vegetation. For boom spraying, use coarse or coarser nozzle spray quality per S-572 ASABE standard; see USDA literature or nozzle manufacturer guidelines. Follow nozzle manufacturer's recommendations for nozzle pressure, spacing and boom height to provide a uniform spray pattern. Follow appropriate spray drift management information where drift potential is a concern.

TANK MIXES WITH OTHER AQUATIC HERBICIDES

DO NOT TANK MIX ANY PESTICIDE PRODUCT WITH THIS PRODUCT without first referring to the following website for the specific product: www.3206tankmix.com. This website contains a list of active ingredients that are currently prohibited from use in tank mixture with this product.

Only use products in tank mixture with this product that: 1) are registered for the intended use site, application method and timing; 2) are not prohibited for tank mixing by the label of the tank mix product; and 3) do not contain one of the prohibited active ingredients listed on www.3206tankmix.com website.

Applicators and other handlers (mixers) who plan to tank-mix must access the website within one week prior to application in order to comply with the most up-to-date information on tank mix partners.

Do not exceed specified application rates for respective products or maximum allowable application rates for any active ingredient in the tank mix.

Read carefully and follow all applicable use directions, precautions, and limitations on the respective product labels. It is the pesticide user's

responsibility to ensure that all products in the mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

Always perform a (jar) test to ensure the compatibility of products to be used in tank mixture.

STORAGE AND DISPOSAL

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

Pesticide Storage: Store in original container only. Keep container closed when not in use. Do not store near food or feed. In case of spill or leak on floor or paved surfaces, soak up with vermiculite, earth, or synthetic absorbent.

Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

Container Handling

Non-refillable Container. DO NOT reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Triple rinse containers small enough to shake (capacity ≤ 5 gallons) 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 two more times.

Triple rinse containers too large to shake (capacity > 5 gallons) 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 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.

Pressure rinse as follows: Empty the remaining contents into application equipment or 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.

Warranty Disclaimer: SePRO Corporation warrants that this product conforms to the chemical description on the product label. Testing and research have also determined that this product is reasonably fit for the uses described on the product label. To the extent consistent with applicable law, SePRO Corporation makes no other express or implied warranty of fitness or merchantability nor any other express or implied warranty and any such warranties are expressly disclaimed.

Misuse: Federal law prohibits the use of this product in a manner inconsistent with its label directions. To the extent consistent with applicable law, the buyer assumes responsibility for any adverse consequences if this product is not used according to its label directions. In no case shall SePRO Corporation be liable for any losses or damages resulting from the use, handling or application of this product in a manner inconsistent with its label.

For additional important labeling information regarding SePRO Corporation's Terms and Conditions of Use, Inherent Risks of Use and Limitation of Remedies, please visit <http://seprolabels.com/terms> or scan the image below.



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SAFETY DATA SHEET

ProcellaCOR EC

Section 1. Identification

GHS product identifier : ProcellaCOR EC

Recommended use of the chemical and restrictions on use

Identified uses : End use herbicide product

EPA Registration No. : 67690-80

Supplier's details : SePRO Corporation
11550 North Meridian Street
Suite 600
Carmel, IN 46032 U.S.A.
Tel: 317-580-8282
Toll free: 1-800-419-7779
Fax: 317-580-8290
Monday - Friday, 8am to 5pm E.S.T.
www.sepro.com

Emergency telephone number (with hours of operation) **INFOTRAC - 24-hour service 1-800-535-5053**

The following recommendations for exposure controls and personal protection are intended for the manufacture, formulation and packaging of this product. For applications and/or use, consult the product label. The label directions supersede the text of this Safety Data Sheet for application and/or use.

Section 2. Hazards identification

Hazard classification: This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other hazards: No data available.

Section 3. Composition/information on ingredients

Chemical nature: This product is a mixture.

Component	CASRN	Concentration
Florpyrauxifen-benzyl	1390661-72-9	2.7%
Ethylhexanol	104-76-7	2.1%
Methanol	67-56-1	0.9%
Balance	Not available	94.3%

Section 4. First aid measures

Description of first aid measures

- General advice:** If potential for exposure exists refer to Section 8 for specific personal protective equipment.
- Inhalation:** Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.
- Skin contact:** 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.
- Eye contact:** Hold eyes 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 eyes. Call a poison control center or doctor for treatment advice.
- Ingestion:** No emergency medical treatment necessary.

Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

- Notes to physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

Section 5. Fire-fighting measures

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Do not use direct water stream. May spread fire. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen fluoride. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters
Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred

because uncontrolled water can spread possible contamination. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this SDS.

Special protective equipment for firefighters:

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions:

Spills or discharges to natural waterways are likely to kill aquatic organisms. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up:

Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact SePRO Corporation for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

Section 7. Handling and storage

Precautions for safe handling: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

Section 8. Exposure controls/personal protection

Control parameters: Exposure limits are listed below, if they exist.

Component	Regulation	Type of Listing	Value/Notation
Ethylexanol	Dow IHG	TWA	2 ppm
	Dow IHG	TWA	SKIN
Methanol	ACGIH	TWA	200 ppm
	ACGIH	STEL	250 ppm
	OSHA Z-1	TWA	260 mg/m ³ 200 ppm
	ACGIH	TWA	SKIN, BEI

ACGIH	STEL	SKIN, BEI
CAL PEL	C	1,000 ppm
CAL PEL	PEL	260 mg/m ³ 200 ppm
CAL PEL	STEL	325 mg/m ³ 250 ppm

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields).

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Chlorinated polyethylene. Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Nitrile/butadiene rubber ("nitrile" or "NBR"). **NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Section 9. Physical and chemical properties

Appearance

Physical State	Liquid
Color	Amber
Odor	Solvent
Odor Threshold	No data available
pH	4.24 (1% aqueous suspension)
Melting point/range	Not applicable to liquids
Freezing point	No data available
Boiling point (760 mmHg)	No data available
Flash point	> 100 °C (> 212 °F)
Evaporation Rate (Butyl Acetate =1)	No data available
Flammability (solid, gas)	Not applicable
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor pressure	0.0000002 mmHg at 20°C (68°F)
Relative Vapor Density (air = 1)	No data available

Relative Density (water = 1)	0.93
Water solubility	0.015 mg/l at 20°C (68°F)
Partition coefficient:	
n-octanol/water	No data available
Auto-ignition temperature	260°C (500 °F)
Decomposition temperature	No data available
Dynamic Viscosity	15.4 mPa.s at 20°C (68°F) 8.90 mPa.s at 40°C (104°F)
Kinematic Viscosity	14.2 mm ² /s at 20°C (68°F) 7.91 mm ² /s at 40°C (104°F)
Explosive properties	Not explosive
Oxidizing properties	Not oxidizing
Liquid Density	0.9257 g/cm ³ at 20 °C (68 °F) <i>Digital density meter</i>
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

Section 10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical stability:	Thermally stable at typical use temperatures.
Possibility of hazardous reactions:	Polymerization will not occur.
Conditions to avoid:	Exposure to elevated temperatures can cause product to decompose.
Incompatible materials:	None known.
Hazardous decomposition products:	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen chloride. Hydrogen fluoride. Nitrogen oxides.

Section 11. Toxicological information

Toxicological information appears in this section when such data is available.

Acute toxicity	
Acute oral toxicity	Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. As product: LD50, Rat, female, > 5,000 mg/kg
Acute dermal toxicity	Prolonged skin contact is unlikely to result in absorption of harmful amounts. As product: LD50, Rat, male and female, > 5,000 mg/kg
Acute inhalation toxicity	No adverse effects are anticipated from single exposure to mist. Based on the available data, respiratory irritation was not observed. As product: LC50, Rat, male and female, 4 Hour, dust/mist, > 5.40 mg/l No deaths occurred at this concentration.
Skin corrosion/irritation	Brief contact may cause slight skin irritation with local redness.
Serious eye damage/ eye irritation	May cause slight eye irritation. Corneal injury is unlikely.
Sensitization	Did not cause allergic skin reactions when tested in guinea pigs. For respiratory sensitization: No relevant data found.

**Specific Target Organ
Systemic Toxicity
(Single Exposure)**

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Specific Target Organ
Systemic Toxicity
(Repeated Exposure)**

For the active ingredient(s): Based on available data, repeated exposures are not anticipated to cause significant adverse effects.
For the major component(s): Based on available data, repeated exposures are not anticipated to cause significant adverse effects.
For the minor component(s): In animals, effects have been reported on the following organs: Blood, kidney, liver, and spleen.

Carcinogenicity

For the active ingredient(s): Did not cause cancer in laboratory animals.
For the major component(s): No relevant data found.

Teratogenicity

For the active ingredient(s): Did not cause birth defects or any other fetal effects in laboratory animals.
For the major component(s): No relevant data found.
For the minor component(s): Has caused birth defects in laboratory animals only at doses toxic to the mother. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. These concentrations exceed relevant human dose levels.

Reproductive toxicity

For the active ingredient(s): In animal studies, did not interfere with reproduction.
For the major component(s): In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Mutagenicity

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.
No aspiration toxicity classification

Section 12. Ecological information

Ecotoxicological information appears in this section when such data is available.

Toxicity

Acute toxicity to fish

Material is practically non-toxic to fish on an acute basis (LC50 > 100 mg/L).

EC50, *Cyprinus carpio* (Carp), static test, 96 Hour, > 120 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

Material is slightly toxic to aquatic invertebrates on an acute basis (LC50/EC50 between 10 and 100 mg/L).

EC50, *Daphnia magna* (Water flea), 48 Hour, 49 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

Material is very highly toxic to some aquatic vascular plant species.

ErC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, > 5.4 mg/l, OECD Test Guideline 201

ErC50, *Myriophyllum spicatum*, 14 d, 0.000919 mg/l

NOEC, *Myriophyllum spicatum*, 14 d, 0.0000954 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
oral LD50, *Colinus virginianus* (Bobwhite quail), > 2500mg/kg bodyweight.
oral LD50, *Apis mellifera* (bees), 48 Hour, > 212.2µg/bee
contact LD50, *Apis mellifera* (bees), 48 Hour, >200µg/bee

Toxicity to soil-dwelling organisms

LC50, *Eisenia fetida* (earthworms), 14 d, mortality, >2,500 mg/kg

Persistence and degradability

florpyrauxifen-benzyl

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Fail
Biodegradation: 14.6 %
Exposure time: 29 d
Method: OECD Test Guideline 301B

Stability in Water (1/2-life)

Hydrolysis, DT50, 913 d, pH 4, Half-life Temperature 25 °C
Hydrolysis, DT50, 111 d, pH 7, Half-life Temperature 25 °C
Hydrolysis, DT50, 1.3 d, pH 9, Half-life Temperature 25 °C

Ethylhexanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
10-day Window: Not applicable
Biodegradation: > 95 %
Exposure time: 5 d
Method: OECD Test Guideline 302B or Equivalent
10-day Window: Pass
Biodegradation: 68 %
Exposure time: 17 d
Method: OECD Test Guideline 301B or Equivalent

Theoretical

Oxygen Demand: 2.95 mg/mg

Chemical

Oxygen Demand: 2.70 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	26-70 %
10 d	75-81 %
20 d	86-87 %

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 9.7 Hour
Method: Estimated.

Methanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 99%
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 1.50 mg/mg

Chemical Oxygen Demand: 1.49 mg/mg Dichromate

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	72 %
20 d	79 %

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 8-18 d
Method: Estimated.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Florpyrauxifen-benzyl

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient:
n-octanol/water(log Pow): 5.5 at 20 °C
Bioconcentration factor (BCF): 356 *Lepomis macrochirus* (Bluegill sunfish) 30 d

Ethylhexanol

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient:
n-octanol/water(log Pow): 3.1 Measured

Methanol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient:
n-octanol/water(log Pow): -0.77 Measured
Bioconcentration factor (BCF): <10 Fish Measured

Balance

Bioaccumulation: No relevant data found.

Mobility in soil

Florpyrauxifen-benzyl

Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient (Koc): 34200

Ethylhexanol

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 800 Estimated.

Methanol

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 0.44 Estimated.

Balance

No relevant data found.

Section 13. Disposal considerations

Disposal methods:

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

Section 14. Transport information

DOT Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Florpyrauxifen-benzyl)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Florpyrauxifen-benzyl
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Florpyrauxifen-benzyl)
UN number	UN 3082
Class	9
Packing group	III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Section 15. Regulatory information

OSHA Hazard Communication Standard This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312 This product is not a hazardous chemical under 29CFR 1910.1200, and therefore is not covered by Title III of SARA.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313 This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Pennsylvania Worker and Community Right-To-Know Act: The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components	CASRN
Ethylhexanol	104-76-7

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986) WARNING: This product contains a chemical(s) known to the State of California to cause birth defects or other reproductive harm.

United States TSCA Inventory (TSCA) This product contains chemical substance(s) exempt from U.S. EPA TSCA Inventory requirements. It is regulated as a pesticide subject to Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements.

Section 16. Other information

**Hazard Rating System
National Fire Protection Association (U.S.A.)**

Health: 1 Flammability: 1 Instability: 0

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
C	Ceiling
CAL PEL	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
Dow IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
PEL	Permissible exposure limit
SKIN	Absorbed via skin
SKIN, BEI	Absorbed via Skin, Biological Exposure Indice
STEL	Short term exposure limit
TWA	Time weighted average

History

Date of issue mm/dd/yyyy : 10/09/2017

Version : 1.0

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

PULL HERE TO OPEN ►

TribuneTM

HERBICIDE

**TO PREVENT ACCIDENTAL POISONING,
NEVER PUT INTO FOOD, DRINK, OR
OTHER CONTAINERS, AND USE STRICTLY
IN ACCORDANCE WITH ENTIRE LABEL.**

**DO NOT USE THIS PRODUCT FOR
REFORMULATION.**

Active ingredient:
Diquat dibromide
[6,7-dihydrodipyrido (1,2-a:2',1'-c)
pyrazinediium dibromide] 37.3%

Other Ingredients: 62.7%

Total: 100.0%

*Contains 2 lbs. diquat cation per gal.
(3.73 lbs. diquat dibromide per gal.)*

*EPA Reg. No. 100-1390
EPA Est. 100-LA-001*

**KEEP OUT OF REACH
OF CHILDREN.**

CAUTION

*See additional precautionary statements
on label.*

*Product of United Kingdom
Formulated in USA*

**SCP 1390A-L1 1110
335260**

2.5 gallons

Net Contents

FIRST AID	
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
If swallowed	<ul style="list-style-type: none"> • 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 the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
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.
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.
NOTE TO PHYSICIANS	
<p>To be effective, treatment for diquat poisoning must begin IMMEDIATELY. Treatment consists of binding diquat in the gut with suspensions of activated charcoal or bentonite clay, administration of cathartics to enhance elimination, and removal of diquat from the blood by charcoal hemoperfusion or continuous hemodialysis.</p>	
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment.</p>	
HOTLINE NUMBER	
<p>For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call 1-800-888-8372</p>	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with eyes, skin, or clothing.

continued...

PRECAUTIONARY STATEMENTS (*continued*)

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are: barrier laminate, butyl rubber ≥ 14 mils, nitrile rubber ≥ 14 mils. If you want more options, follow the instructions for Category A on an EPA Chemical Resistance Category Selection Chart.

Mixers, Loaders, Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants or coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing, or loading
- Face shield when mixing or loading

Exception: After this product has been diluted to 0.50% Tribune or less in water (i.e., the labeled rate for some spot applications), applicators for AQUATIC SURFACE APPLICATIONS must, at a minimum, wear (Note - Mixers and Loaders for this application method must still wear the personal protective equipment (PPE) as described in the above section):

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves
- Protective eyewear

Exception: At a minimum, applicators for AQUATIC SUBSURFACE APPLICATIONS must wear (Note - Mixers and Loaders for this application method must still wear the personal protective equipment (PPE) as described in the above section):

- Short-sleeved shirt and short pants
- Waterproof gloves
- Chemical-resistant footwear plus socks

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. 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.

Engineering Control Statements

Mixers and loaders supporting aerial applications are required to use closed systems that provide dermal protection. The closed system must be used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)]. When using the closed system, mixers and loaders' PPE requirements may be reduced or modified as specified in the WPS.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

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. Prolonged contact of the product with the skin may produce burns.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

This pesticide is toxic to aquatic invertebrates. **For Terrestrial Uses**, do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water. **For Aquatic Uses** do not apply directly to water except as specified on this label.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, LLC or Seller. To the extent permitted by applicable law, Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. To the extent permitted by applicable law: (1) this warranty does not extend to the use of the product contrary to label instructions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and, (2) Buyer and User assume the risk of any such use. To the extent permitted by applicable law, SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.

To the extent permitted by applicable law, in no event shall SYNGENTA be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

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

READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.

Do not apply this product through any type of irrigation system.

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 requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and 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 this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 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 plants, soil, or water is:

- Coveralls over short-sleeved shirt and short pants, or coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure

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 agricultural plants on farms, forests, nurseries, or greenhouses.

Keep all unprotected persons out of operating areas or vicinity where there may be drift.

For terrestrial uses, do not enter or allow entry of maintenance workers into treated areas, or allow contact with treated vegetation wet with spray, dew, or rain, without appropriate protective clothing until spray has dried.

For aquatic uses, do not enter treated areas while treatments are in progress.

For Bulk And Mini-Bulk Containers

When the container is empty, replace the cap and seal all openings that have been opened during use and return the container to the point of purchase, or to a designated location named at the time of purchase of this product. This container must be refilled with this pesticide product. **DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE.** Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transporting. Do not transport if this container is damaged or leaking. If the container is damaged, leaking or obsolete, contact Syngenta Crop Protection at 1-800-888-8372. If not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling. Disposal of this container must be in compliance with state and local regulations.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!

SPECIFIC USE DIRECTIONS

Tribune is a nonvolatile herbicidal chemical for use as a general herbicide to control weeds in commercial greenhouses and nurseries; ornamental seed crops (flowers, bulbs, etc. – except in the state of California); landscape, industrial, recreational, commercial, residential, and public areas; turf renovation (all turf areas except commercial sod farms); dormant established turfgrass (bermudagrass, zoysiagrass – nonfood or feed crop); and aquatic areas. Absorption and herbicidal action is usually quite rapid with effects visible in a few days. Tribune controls weeds by interfering with photosynthesis within green plant tissue. Weed plants should be succulent and actively growing for best results. Rinse all spray equipment thoroughly with water after use. Avoid spray drift to crops, ornamentals, and other desirable plants during application, as injury may result. Application to muddy water may result in reduced control. Minimize creating muddy water during application. Use of dirty or muddy water for Tribune dilution may result in reduced herbicidal activity. Avoid applying under conditions of high wind, water flow, or wave action.

SPRAY DRIFT MANAGEMENT

Avoiding spray drift at the application site is the responsibility of the applicator and the grower. The interaction of many equipment- and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses, or to applications using dry formulations.

- The distance of the outermost nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wing-span or rotor.
- Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45 degrees.

Where states have more stringent regulations, they should be observed.

Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (See **Wind, Temperature and Humidity, and Temperature inversions**).

Controlling Droplet Size

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length

For some use patterns, reducing the effective boom length to less than $\frac{3}{4}$ of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height

Applications should not be made at a height greater than 10 ft. above the top of the target plants, unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment

When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

Wind

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions

Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog, however, if fog is not present inversions can also be identified 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.

Sensitive Areas

The pesticide should only be applied when the wind is blowing away from adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops).

COMMERCIAL GREENHOUSES AND NURSERIES

For general weed control in commercial greenhouses (beneath benches), field grown and container stock, and other similar areas, Tribune may be applied preplant or postplant preemergence in field grown ornamental nursery plantings or postemergence as a directed spray. Tribune may also be applied preemergence in ornamental seed crops (except in the state of California). Avoid contact with desirable foliage as injury may occur. Do not use on food or feed crops.

Spot spray: 1-2 qts. Tribune plus the labeled rate of a 75% or greater nonionic surfactant per 100 gals. of water, or 0.75 oz. (22 mls.) Tribune plus the labeled rate of a 75% or greater nonionic surfactant per 1 gal. of water.

Broadcast: 1-2 pts. Tribune in a minimum of 15 gals. of water per acre. Add the labeled rate of a 75% or greater nonionic surfactant per 100 gals. of spray mixture. Use an adequate spray volume to insure good coverage.

ORNAMENTAL SEED CROPS (FLOWERS, BULBS, ETC.) EXCEPT IN THE STATE OF CALIFORNIA

For preharvest desiccation of ornamental seed crops. NOT FOR FOOD OR FIBER CROPS.

Broadcast (Air or Ground): 1.5-2 pts. Tribune plus the labeled rate of a 75% or greater nonionic surfactant per acre in sufficient water (minimum of 5 gals. by air; 15 gals. by ground) for desiccation and weed burndown. Repeat as needed at no less than 5-day intervals up to three applications. Do not use seed, screenings, or waste as feed or for consumption.

DIRECTIONS FOR LANDSCAPE, INDUSTRIAL, RECREATIONAL, COMMERCIAL, RESIDENTIAL, AND PUBLIC AREAS

Tribune provides fast control of broadleaf and grassy weeds in industrial, recreational, golf course, commercial, residential, and public areas.

Tribune is a nonselective herbicide that rapidly kills undesirable above ground weed growth in 24-36 hours. Avoid application of Tribune to desirable plants.

Tribune is a contact/desiccant herbicide; it is essential to obtain complete coverage of the target weeds to get good control. Improper application technique and/or application to stressed weeds may result in unacceptable weed control. For best results, apply to actively growing, young weeds.

Difficult weeds (such as perennial or deeply-rooted weeds) can often be controlled by tank mixing Tribune with other systemic-type herbicides. Refer to other product labels for specific application directions.

For residual weed control, tank mix Tribune with a preemergent herbicide labeled for the intended use site. When mixing Tribune with another herbicide, it is recommended to mix just a small amount first to determine if the mixture is physically compatible before proceeding with larger volumes.

Syngenta has not tested all possible tank mixtures with other herbicides for compatibility, efficacy or other adverse effects. Before mixing with other herbicides Syngenta recommends you first consult your state experimental station, state university or extension agent.

Grounds maintenance weed control: Tribune can be used as a spot or broadcast spray to control weeds in public, commercial and residential landscapes, including landscape beds, lawns, golf courses and roadsides. Tribune can also be used for weed control around the edges and nonflooded portions of ponds, lakes and ditches.

Trim and Edge weed control: Tribune can be used to eliminate undesired grass and broadleaf plant growth in a narrow band along driveways, walkways, patios, cart paths, fence lines, and around trees, ornamental gardens, buildings, other structures, and beneath noncommercial greenhouse benches. Vegetation control with Tribune is limited to the spray application width. Do not exceed the labeled rate of Tribune as excessive rates may result in staining of concrete-based materials.

Tribune, since it does not translocate systemically, can be used as an edging or pruning tool when precisely applied to select areas of grass or to undesirable growth on desirable ornamental bedding plants, ground covers, etc.

Industrial weed control: Tribune can be used as a spot or broadcast spray either alone or in combination with other herbicides as a fast burndown or control weeds in rights-of-ways, railroad beds/yards, highways, roads, dividers and medians, parking lots, pipelines, pumping stations, public utility lines, transformer stations and substations, electric utilities, storage yards, and other non-crop areas.

Spot spray: Apply either 1-2 qts. of Tribune plus the labeled rate of a 75% or greater nonionic surfactant per 100 gals. water, or 0.75 oz. (22 mls.) Tribune plus the labeled rate of a 75% or greater nonionic surfactant per 1 gal. of water.

Broadcast: 1-2 pts. Tribune per acre in sufficient water to insure good spray coverage. Add the labeled rate of 75% or greater nonionic surfactant per 100 gals. spray mixture. Greater water volumes are necessary if the target plants are tall and/or dense. It is recommended that 60 gals. or greater water volume be used to obtain good coverage of dense weeds.

TURF RENOVATION (ALL TURF AREAS EXCEPT COMMERCIAL SOD FARMS)

To desiccate golf course turf and other turf areas prior to renovation, apply 1-2 pts. of Tribune per acre plus the labeled rate of a 75% or greater nonionic surfactant in 20-100 gals. of water (4 teaspoons of Tribune plus the labeled rate of a 75% or greater nonionic surfactant per 1 gal. of water) using ground spray equipment. Apply for full coverage and thorough contact with the turfgrass. Apply only when the turf is dry, free from dew and incidental moisture. For enhanced turf desiccation, especially in the case of thick turfgrass, water volumes should approach 100 gals. of water per acre.

For **suppression** of regrowth and quick desiccation of treated turfgrass, Tribune may be mixed with other systemic nonselective or systemic postemergence grassy weed herbicides. Refer to other product labels for specific application directions and restrictions.

Avoid spray contact with, or spray drift to, foliage of ornamental plants or food crops.

Do not graze livestock on treated turf or feed treated thatch to livestock.

DORMANT ESTABLISHED TURFGRASS (BERMUDAGRASS, ZOYSIAGRASS), NONFOOD OR FEED CROP

For control of emerged annual broadleaf and grass weeds, including Little Barley*, Annual Bluegrass, Bromes including Rescuegrass, Sixweeks fescue, Henbit, Buttercup, and Carolina Geranium in established dormant bermudagrass lawns, parks, golf courses, etc.

Apply 1-2 pts. Tribune per acre in 20-100 gals. of spray mix by ground as a broadcast application. Add the labeled rate of a 75% or greater nonionic surfactant per 100 gals. of spray mixture.

Bermudagrass must be dormant at application. Application to actively growing bermudagrass may cause delay or permanent injury. Users in the extreme Southern areas should be attentive to the extent of dormancy at the time of application.

*For control of Little Barley, apply Tribune prior to the mid-boot stage.

AQUATIC USE DIRECTIONS

New York – Not for Sale or Use in New York State without Supplemental Special Local Needs Labeling.

Necessary approval and/or permits must be obtained prior to application if required. Consult the responsible State Agencies (i.e., Fish and Game Agencies, State Water Conservation authorities, or Department of Natural Resources).

Treatment of dense weed areas may result in oxygen loss from decomposition of dead weeds. This loss of oxygen may cause fish suffocation. Therefore, treat only $\frac{1}{3}$ to $\frac{1}{2}$ of the water body area at one time and wait 14 days between treatments.

For best results on submersed weeds, Tribune should be applied to actively growing (photosynthesizing) weeds when water temperatures have reached or exceeded approximately 50°F, typically during the Spring or early Summer.

For application only to **still water** (i.e. ponds, lakes, and drainage ditches) where there is minimal or no outflow to public waters.

and/or

For applications to **public waters** in ponds, lakes, reservoirs, marshes, bayous, drainage ditches, canals, streams, rivers, and other slow-moving or quiescent bodies of water for control of aquatic weeds. For use by:

- Corps of Engineers; or
- Federal or State Public Agencies (i.e., Water Management District personnel, municipal officials); or
- Applicators and/or Licensees (Certified for aquatic pest control) that are authorized by the State or Local government.

Treated water may be used according to the following table or until such time as an approved assay (example: PAM II Spectromatic Method) shows that the water does not contain more than the designated maximum contaminant level goal (MCLG) of 0.02 mg/l. (ppm) of diquat dibromide (calculated as the cation).

Water Use Restrictions Following Applications With Tribune (Days)

Application Rate	Drinking	Fishing and Swimming	Livestock/ Domestic Animals Consumption	Spray Tank Applications** and Irrigation to Turf and Landscape Ornamentals	Spray Tank Applications** and Irrigation to Food Crops and Production Ornamentals
2 gals./ surface acre	3 days	0	1 day	3 days	5 days
1 gal./ surface acre	2 days	0	1 day	2 days	5 days
0.75 gal./ surface acre	2 days	0	1 day	2 days	5 days
0.50 gal./ surface acre	1 day	0	1 day	1 day	5 days
Spot Spray* (<0.5 gal./ surface acre)	1 day	0	1 day	1 day	5 days

*Add a nonionic surfactant (with at least 75% of the constituents active as a spray adjuvant) at the rate recommended by the manufacturer.

**For preparing agricultural sprays for food crops, turf or ornamentals (to prevent phytotoxicity), do not use water treated with Tribune before the specified time period.

When the contents of more than one spray tank is necessary to complete a single aquatic application, no water holding restrictions apply between the consecutive spray tanks.

No applications are to be made in areas where commercial processing of fish, resulting in the production of fish protein concentrate or fish meal, is practiced. Before application, coordination and approval of local and/or State authorities must be obtained.

Floating and Marginal Weeds Including:

Water lettuce, *Pistia stratiotes*
Water hyacinth, *Eichhornia crassipes*
Duckweed, *Lemna* spp.
Salvinia spp. (including *S. molesta*)
Pennywort (*Hydrocotyle* spp.)
Frog's Bit¹, *Limnobium spongia*
Cattails, *Typha* spp.

¹Not for use in California

Tribune may be applied by backpack, airboat, spray handgun, helicopter, airplane, or similar application equipment that results in thorough spray coverage.

Spot Treatment: Apply Tribune at 2 quarts per 100 gallons spray carrier (0.5% solution) with an approved aquatic wetting agent at 0.25-1.0% v/v (1 quart to 1 gallon per 100 gallons water). For cattail control, Tribune should be applied prior to flowering at the maximum application rate (8 quarts of Tribune/100 gallons spray carrier) plus the wetting agent. Repeat treatments may be necessary for complete control.

Spray to completely wet target weeds but not to runoff. Densely packed weeds or mats may require additional applications due to incomplete spray coverage. Re-treat as needed. For best results, re-treat weed escapes within 2 weeks of the initial treatment.

Broadcast Treatment: Apply Tribune at the rate of 0.5-2.0 gallons per surface acre in sufficient carrier along with 16-32 oz./A of an approved wetting agent. Re-treat as necessary for densely populated weed areas. Good coverage is necessary for control of the target weeds.

For duckweed control, apply Tribune at 1-2 gallons/A.

Submersed Weeds Including:

Bladderwort, *Utricularia* spp.
Hydrilla, *Hydrilla verticillata*
Watermilfoils (including Eurasian), *Myriophyllum* spp.
Pondweeds¹, *Potamogeton* spp.
Coontail, *Ceratophyllum demersum*
Elodea, *Elodea* spp.
Brazilian Elodea, *Egeria densa*
Naiad, *Najas* spp.
Algae², *Spirogyra* spp. and *Pithophora* spp.

¹Tribune controls *Potamogeton* species except Richardson's pondweed, *P. richardsonii*.

²Suppression only. For control of *Spirogyra* and/or *Pithophora*, use Tribune in a tank mix with an approved algaecide.

For severe weed or algae infestations, the use of an approved algaecide either as a pretreatment to the Tribune application or in a tank mix, may result in enhanced weed control.

To control submersed weeds, apply Tribune in water at 0.5-2.0 gallons per surface acre (per 4 foot water depth). For severe weed infestations, use the 2.0 gallon per surface acre rate. For best results, re-treat as necessary on 14-21 day intervals. The table below shows how many gallons of Tribune to apply per surface acre based on water depth.

	Gallons of Tribune per Surface Acre Average Water Depth			
	1 Foot	2 Feet	3 Feet	4 Feet
1 gallon/acre rate	0.25 gal.	0.50 gal.	0.75 gal.	1.0 gal.
2 gallon/acre rate	0.50 gal.	1.0 gal.	1.5 gals.	2.0 gals.

Note: For water depths of 2 feet or less including shorelines, do not exceed 1 gallon per surface acre.

Subsurface Applications: Where the submersed weed growth, especially Hydrilla, has reached the water surface, apply either in a water carrier or an invert emulsion through boom trailing hoses carrying nozzle tips to apply the dilute spray below the water surface to insure adequate coverage.

Bottom Placement: Where submersed weeds such as Hydrilla, Bladderwort, or Coontail have reached the water surface and/or where the water is slowly moving through the weed growth, the use of an invert emulsion carrier injecting diluted Tribune near the bottom with weighted hoses may improve control. The addition of a copper based algaecide may improve control. If algae are present along with the submersed weeds, a pretreatment with a copper based algaecide may improve overall control.

Surface Application for Submerged Aquatic Weeds: Apply the recommended rate of Tribune as a spray in sufficient carrier to fully cover the target area. Applications should be made to ensure complete coverage of the weed areas. In mixed weed populations, use the high rate of application as indicated by weeds present. For dense submersed weeds or water over 2 feet deep, a surface spray is not recommended (Tribune should be applied subsurface in these situations.)

If posting is required by your state or tribe – consult the agency responsible for pesticide regulations for specific details.

STORAGE AND DISPOSAL

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

Pesticide Storage

Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Do not contaminate feed, foodstuffs, or drinking water. Do not store or transport near feed or food. Store at temperatures above 32°F. For help with any spill, leak, fire, or exposure involving this material, call 1-800-888-8372.

Pesticide Disposal

Open dumping is prohibited. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Handling [less than 5 gallons]

Non-refillable 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 and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Container Handling [Bulk/Mini-Bulk]

Refillable container. 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 person refilling. To clean container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent 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 two more times. Then offer for recycling if available or puncture and dispose of container in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities. If the container is damaged, leaking or obsolete, contact Syngenta Crop Protection at 1-800-888-8372.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

Tribune™ is a trademark of a Syngenta Group Company

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For non-emergency (e.g., current product information), call
Syngenta Crop Protection at 1-800-334-9481.

Manufactured for:
Syngenta Crop Protection, LLC
P. O. Box 18300
Greensboro, North Carolina 27419-8300

SCP 1390A-L1 1110
335260

Tribune™

**KEEP OUT OF REACH OF CHILDREN.
CAUTION**

Herbicide

**TO PREVENT ACCIDENTAL POISONING,
NEVER PUT INTO FOOD, DRINK, OR
OTHER CONTAINERS, AND USE STRICTLY
IN ACCORDANCE WITH ENTIRE LABEL.**

**DO NOT USE THIS PRODUCT FOR
REFORMULATION.**

Active ingredient:	
Diquat dibromide	
[6,7-dihydrodipyrido (1,2-a:2',1'-c) pyrazinediium dibromide]	37.3%
Other Ingredients:	62.7%
Total:	100.0%

Contains 2 lbs. diquat cation per gal. (3.73 lbs. diquat dibromide per gal.)

See additional precautionary statements on label.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

EPA Reg. No. 100-1390
EPA Est. 100-LA-001

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Product of United Kingdom
Formulated in USA

Manufactured for:
Syngenta Crop Protection, LLC
P. O. Box 18300
Greensboro, North Carolina 24719-8300

**SCP 1390A-L1 1110
335260**

2.5 gallons
Net Contents

FIRST AID

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice. **If swallowed:** Call 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 the poison control center or doctor. Do not give anything by mouth to an unconscious person. **If in eyes:** 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. **If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIANS: To be effective, treatment for diquat poisoning must begin IMMEDIATELY. Treatment consists of binding diquat in the gut with suspensions of activated charcoal or bentonite clay, administration of cathartics to enhance elimination, and removal of diquat from the blood by charcoal hemoperfusion or continuous hemodialysis. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

HOTLINE NUMBER: For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call **1-800-888-8372**.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION

Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with eyes, skin, or clothing.

Environmental Hazards: This pesticide is toxic to aquatic invertebrates. **For Terrestrial Uses,** do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water. **For Aquatic Uses** do not apply directly to water except as specified on this label.

STORAGE AND DISPOSAL

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

Pesticide Storage: Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Do not contaminate feed, foodstuffs, or drinking water. Do not store or transport near feed or food. Store at temperatures above 32°F. For help with any spill, leak, fire, or exposure involving this material, call 1-800-888-8372.

Pesticide Disposal: Open dumping is prohibited. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Handling [less than 5 gallons]: Non-refillable 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 and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!

BAR CODE # IS
(01) 0 07 02941 45811
LAST DIGIT IS CHECK DIGIT
UCC/EAN 128

TRIBUNE HERBICIDE

Date: 1/2/2015
Replaces: 3/1/2011

1. PRODUCT IDENTIFICATION

Product identifier on label: **TRIBUNE HERBICIDE**
Product No.: A12872A
Use: Herbicide
Manufacturer: Syngenta Crop Protection, LLC
Post Office Box 18300
Greensboro NC 27419
Manufacturer Phone: 1-800-334-9481

Emergency Phone: 1-800-888-8372

2. HAZARDS IDENTIFICATION

Classifications: Corrosive to Metals: Category 1
Oral: Category 4
Inhalation: Category 3
Specific Target Organ Toxicity: Repeated Category 2
Eye Damage/Irritation: Category 2B

Signal Word (OSHA): Danger

Hazard Statements: May be corrosive to metals
Harmful if swallowed
Causes eye irritation
Toxic if inhaled
May cause damage to organs through prolonged or repeated exposure

Hazard Symbols:



Precautionary Statements: Keep only in original container.
Do not breathe mist, vapors, spray.
Avoid breathing mist, vapors, spray.
Wash hands and face thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
If swallowed: Call a poison center, doctor or Syngenta if you feel unwell. Rinse mouth.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

TRIBUNE HERBICIDE

Date: 1/2/2015
Replaces: 3/1/2011

If eye irritation persists: Get medical advice.
Call a poison center, doctor or Syngenta.
Get medical advice if you feel unwell.
See Section 4 First Aid Measures.
Absorb spillage to prevent material damage.
Store locked up.
Store in corrosive resistant plastic, plastic-lined steel, stainless steel or fiberglass container.
Dispose of contents and container in accordance with local regulations.

Other Hazard Statements: Flammable hydrogen gas may be formed on contact with incompatible metals. See "Conditions to Avoid", Section 10.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Common Name	CAS Number	Concentration
		Trade Secret	
Other ingredients	Other ingredients	Trade Secret	62.7%
[6,7-dihydrodipyrido(1,2-a:2',1'-c)pyrazinediium dibromide]	Diquat Dibromide	85-00-7	37.3%

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

Have the product container, label or Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

Ingestion: If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Eye Contact: If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Skin Contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Inhalation: If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Most important symptoms/effects:

Eye irritation

Indication of immediate medical attention and special treatment needed:

To be effective, treatment for ingestion of the product must begin IMMEDIATELY. Treatment consists of binding the active ingredient, diquat, in the gut with suspensions of activated charcoal or bentonite clay, administration of cathartics to enhance elimination and removal of diquat from the blood by charcoal hemoperfusion or continuous hemodialysis.

TRIBUNE HERBICIDE

Date: 1/2/2015
 Replaces: 3/1/2011

5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:

Use dry chemical, foam or CO2 extinguishing media. If water is used to fight fire, dike and collect runoff.

Specific Hazards:

This product may form flammable and explosive hydrogen gas when in contact with aluminum.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Special protective equipment and precautions for firefighters:

Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures:

Follow exposure controls/personal protection outlined in Section 8.

Methods and materials for containment and cleaning up:

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Precautions for safe handling:

This product reacts with aluminum to produce flammable hydrogen gas. Do not mix or store in containers or systems made of aluminum or having aluminum fittings.

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Conditions for safe storage, including any incompatibilities:

Store locked up.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Occupational Exposure Limits:

Chemical Name	OSHA PEL	ACGIH TLV	Other	Source
Other ingredients	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Diquat Dibromide	Not Established	0.5 mg/m ³ TWA	0.5 mg/m ³ TWA (0.5 total; 0.08 respirable)	Manufacturer

TRIBUNE HERBICIDE

Date: 1/2/2015
Replaces: 3/1/2011

Appropriate engineering controls:

Use effective engineering controls to comply with occupational exposure limits (if applicable).

Individual protection measures:

Ingestion:

Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Eye Contact:

Where eye contact is likely, use chemical splash goggles.

Skin Contact:

Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear.

Inhalation:

A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Dark brown liquid

Odor: Odorless

Odor Threshold: Not Available

pH: 4 - 6

Melting point/freezing point: Not Applicable

Initial boiling point and boiling range: Not Available

Flash Point (Test Method): Not Applicable

Flammable Limits (% in Air): Not Available

Flammability: Not Applicable

Vapor Pressure: Diquat Dibromide < 10(-8) mmHg @ 77°F (25°C)

Vapor Density: Not Available

Relative Density: 1.202 g/ml @ 68°F (20°C)

Solubility (ies): Diquat Dibromide 718,000 mg/l @ 68°F (20°C) and pH 7.2

Partition coefficient: n-octanol/water: Not Available

Autoignition Temperature: Not Applicable

Decomposition Temperature: Not Available

Viscosity: Not Available

Other: None

TRIBUNE HERBICIDE

Date: 1/2/2015
Replaces: 3/1/2011

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.

Chemical stability: Stable under normal use and storage conditions.

Possibility of hazardous reactions: Will not occur.

Conditions to Avoid: Concentrate should not be stored in aluminum containers. Spray solutions should not be mixed, stored or applied in containers other than plastic, plastic-lined steel, stainless steel or fiberglass.

Incompatible materials: None known.

Hazardous Decomposition Products: Flammable hydrogen gas may be formed on contact with aluminum. See "Conditions to Avoid", Section 10.

11. TOXICOLOGICAL INFORMATION

Health effects information

Likely routes of exposure: Dermal, Inhalation

Symptoms of exposure: Eye irritation

Delayed, immediate and chronic effects of exposure: Eye irritation

Numerical measures of toxicity (acute toxicity/irritation studies (finished product))

Ingestion:	Oral (LD50 Female Rat) :	886 mg/kg body weight
Dermal:	Dermal (LD50 Rabbit) :	> 5050 mg/kg body weight
Inhalation:	Inhalation (LC50 Rat) :	0.62 mg/l air - 4 hours
Eye Contact:	Mildly Irritating (Rabbit)	
Skin Contact:	Slightly Irritating (Rabbit)	
Skin Sensitization:	Not a Sensitizer (Guinea Pig)	

Reproductive/Developmental Effects

Diquat Dibromide: Mutagenicity: No evidence in in vivo assays.

Development Toxicity: In rabbit studies a small percentage of fetuses had minor defects at 3 and 10 mg ion/kg/d.

Chronic/Subchronic Toxicity Studies

Diquat Dibromide: Kidney weight decreases and cataracts seen in dogs at 12.5 mg ion/kg/d.

No evidence for neurotoxic effects in rats dosed up to 400 ppm ion in the diet for 13 weeks.

Carcinogenicity

Diquat Dibromide: No evidence of carcinogenicity in rat and mouse studies.

Chemical Name	NTP/IARC/OSHA Carcinogen
---------------	--------------------------

Other ingredients	No
[6,7-dihydrodipyrido(1,2-a:2',1'-c)pyrazinediium dibromide]	No

TRIBUNE HERBICIDE

Date: 1/2/2015
 Replaces: 3/1/2011

Other Toxicity Information

None

Toxicity of Other Components

Not Applicable

Other ingredients

Not Applicable

Target Organs

Active Ingredients

Diquat Dibromide: Eye, kidney

Inert Ingredients

: Not Applicable

Other ingredients: Not Applicable

12. ECOLOGICAL INFORMATION

Eco-Acute Toxicity

Diquat Dibromide:

Fish (Rainbow Trout) 96-hour LC50 14.83 ppm

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 0.77 ppm

Green Algae 4-day EC50 9.4 ppb

Bird (Mallard Duck) 14-day LD50 60.6 mg/kg

Environmental Fate

Diquat Dibromide:

The information presented here is for the active ingredient, diquat dibromide.
 Stable in soil and water. Immobile in soil. Sinks in water (after 24 h).

13. DISPOSAL CONSIDERATIONS

Disposal:

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification

Ground Transport - NAFTA

Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat Dibromide)

Hazard Class: Class 8

Identification Number: UN 1760

Packing Group: PG III

Comments

Water Transport - International

TRIBUNE HERBICIDE

Date: 1/2/2015
 Replaces: 3/1/2011

Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat Dibromide), Marine Pollutant
 Hazard Class: Class 8
 Identification Number: UN 1760
 Packing Group: PG III

Air Transport
 Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat Dibromide)
 Hazard Class: Class 8
 Identification Number: UN 1760
 Packing Group: PG III

15. REGULATORY INFORMATION

Pesticide Registration:

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Caution: Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with eyes, skin, or clothing.

EPA Registration Number(s):
 100-1390

EPCRA SARA Title III Classification:

Section 311/312 Hazard Classes: Acute Health Hazard

Section 313 Toxic Chemicals: None

CERCLA/SARA 304 Reportable Quantity (RQ):

Report product spills \geq 268 gal. (based on diquat [RQ = 1,000 lbs.] content in the formulation)

RCRA Hazardous Waste Classification (40 CFR 261):

Not Applicable

TSCA Status:

Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 2
 Flammability: 1
 Instability: 0

HMIS Hazard Ratings

Health: 2
 Flammability: 1
 Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme
*	Chronic

Syngenta Hazard Category: C,S

For non-emergency questions about this product call:

1-800-334-9481

TRIBUNE HERBICIDE

Date: 1/2/2015
Replaces: 3/1/2011

Original Issued Date: 12/10/2010
Revision Date: 1/2/2015 Replaces: 3/1/2011
Section(s) Revised: 1-16

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

GROUP 14 HERBICIDE

Clipper® SC

AQUATIC HERBICIDE

**FOR THE MANAGEMENT OF UNDESIRABLE AQUATIC VEGETATION
IN SLOW MOVING OR QUIESCENT WATERS**

ACTIVE INGREDIENT:

Flumioxazin* 41.4%

OTHER INGREDIENTS: 58.6%

TOTAL: 100.0%

*2-[7-fluoro-3,4-dihydro-3-oxo-4-(2-propynyl)-2H-1,4-benzoxazin-6-yl]-4,5,6,7-tetrahydro-1H-isoindole-1,3(2H)-dione
Clipper SC contains 4 pounds flumioxazin per gallon.

Shake Well Before Use

KEEP OUT OF REACH OF CHILDREN

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

SEE NEXT PAGE FOR ADDITIONAL PRECAUTIONARY STATEMENTS

**For Chemical Spill, Leak, Fire, or Exposure, Call CHEMTREC (800) 424-9300
For Medical Emergencies Only, Call (877) 325-1840**

EPA REG. NO. 71368-114

**Manufactured for
Nufarm Inc.
11901 S. Austin Ave.
Alsip, IL 60803**



Grow a better tomorrow

**Nonrefillable
Container**

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Harmful if inhaled or absorbed through the skin. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with skin, eyes or clothing.

HOT LINE 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 1-877-325-1840 for emergency medical treatment information.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

Some of the materials that are chemical-resistant to this product are listed below.

Applicators and other handlers must wear:

- long-sleeved shirt and long pants
- chemical-resistant gloves made of any waterproof material
- shoes and socks.

Follow manufacturer's instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

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. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

If not used in accordance with directions on the label, this product can be toxic to non-target plants and aquatic invertebrates. Do not apply directly to treated, finished drinking water reservoirs or drinking water receptacles when the water is intended for human consumption. Drift and runoff may be hazardous to non-target plants and aquatic organisms in water adjacent to treated areas. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

This pesticide is toxic to plants. Use strictly in accordance with the drift and run-off precautions on this label in order to minimize off-site exposures.

Treatment of aquatic weeds can result in oxygen loss from decomposition of dead weeds. This loss can cause fish suffocation. Therefore, to minimize this hazard, treat 1/3 to 1/2 of the water area in a single operation and wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Consult with the State agency with primary responsibility for regulating pesticides before applying to public waters to determine if a permit is needed.

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.

PHYSICAL OR CHEMICAL HAZARDS

Do not mix or allow coming in contact with oxidizing agent. Hazardous chemical reaction may occur.

DIRECTIONS FOR USE

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

Read the entire label before using this product. Use strictly in accordance with label precautionary statements and directions, and with applicable state and federal regulations.

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 requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

RISKS OF USING THIS PRODUCT

The Buyer and User (referred to collectively herein as "Buyer") of this product must be aware that there are inherent unintended risks associated with the use of this product which are impossible to eliminate. These risks include, but are not limited to, injury to plants and crops to which this product is applied, lack of control of the target pests or weeds, resistance of the target pest or weeds to this product, injury caused by drift, and injury to rotational crops caused by carryover in the soil. Such risks of crop injury, non-performance, resistance or other unintended consequences are unavoidable and may result because of such factors as weather, soil conditions, disease, moisture conditions, irrigation practices, condition of the crop at the time of application, presence of other materials either applied in the tank mix with this product or prior to application of this product, cultural practices or the manner of use or application, (or a combination of such factors) all of which are factors beyond the control of Nufarm. The Buyer must be aware that these inherent unintended risks may reduce the harvested yield of the crop in all or a portion of the treated acreage, or otherwise affect the crop such that additional care, treatment and expense are required to take the crop to harvest. If the Buyer chooses not to accept these risks, THEN DO NOT APPLY THIS PRODUCT. By applying this product Buyer acknowledges and accepts these inherent unintended risks AND TO THE FULLEST EXTENT ALLOWED BY LAW, AGREES THAT ALL SUCH RISKS ASSOCIATED WITH THE APPLICATION AND USE ARE ASSUMED BY THE BUYER.

Nufarm shall not be responsible for losses or damages (including, but not limited to, loss of yield, increased expenses of farming the crop or such incidental, consequential or special damages that may be claimed) resulting from use of this product in any manner not set forth on the label. Buyer assumes all risks associated with the use of this product in any manner or under conditions not specifically directed or approved on the label.

See also **WARRANTY DISCLAIMER** and **LIMITATION OF LIABILITY** sections of the label for additional information.

WEED RESISTANCE MANAGEMENT

This product is a Group 14 herbicide. Any weed population may contain or develop plants naturally resistant to this product and other Group 14 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Appropriate resistance-management strategies should be followed. To delay herbicide resistance take one or more of the following steps:

- Rotate this product or other Group 14 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage (or other mechanical control methods), cultural (e.g., higher crop seedling rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Fields 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. Fields should be scouted after application to verify that the treatment was effective and to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or by a mechanical method such as hoeing or tillage. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields, and planting clean seed.
- If a weed pest population continues to progress after treatment with this product, discontinue use of this product, and switch to another management strategy or herbicide with a different mode of action, if available.
- Contact your local sales representative, crop advisor, 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 action.
- Contact your local sales representative, agricultural dealer, consultant, local extension specialist, applicator, crop advisor, and/or appropriate state agricultural extension service representative for additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.
- Report any incidence of non-performance of this product against a particular weed species to your local sales representative or agricultural dealer.

BEST MANAGEMENT PRACTICES

- Plant into weed-free fields and keep fields as weed-free as possible.
- Use a diversified approach toward weed management. Whenever possible incorporate multiple weed-control practices such as mechanical cultivation, biological management practices, and crop rotation.
- Fields with difficult to control weeds should be rotated to crops that allow the use of herbicides with alternative mechanisms of action or different management practices.
- Do not allow weed escapes to produce seeds, roots or tubers. Manage weed seeds at harvest and post-harvest to prevent a buildup of the weed seed-bank.
- Prevent field-to-field and within-field movement of weed seed or vegetative propagules.
- Prevent an influx of weeds into the field by managing field borders.
- Identify weeds present in the field through scouting and field history and understand their biology. The weed-control program should consider all of the weeds present.
- Difficult to control weeds may require sequential applications of herbicides with differing mechanisms of action.
- Apply this herbicide at the correct timing and rate needed to control the most difficult weed in the field.
- Use a broad spectrum soil-applied herbicide with a mechanism of action that differs from this product as a foundation in a weed-control program. Do not use more than two applications of this or any other herbicide with the same mechanism of action within a single growing season unless mixed with an herbicide with another mechanism of action with an overlapping spectrum for the difficult-to-control weeds.
- If resistance is suspected, treat weed escapes with an herbicide with a different MOA or use non-chemical methods to remove escapes.

TANK MIXES

NOTICE: Tank mixing or use of this product with any other product which is not specifically and expressly authorized by the label shall be the exclusive risk of user, applicator and/or application advisor, to the extent allowed by applicable law.

It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

PRODUCT INFORMATION

This product is a fast acting contact herbicide that controls selected submersed, emergent, and floating aquatic weeds. It is most effective when applied to young, actively growing weeds in water with a pH of less than 8.5.

This product may be applied to the following quiescent or slow moving bodies of water:

- Bayous
- Canals
- Drainage ditches
- Lakes
- Marshes
- Ponds (including golf course ponds)
- Reservoirs

Application of this product to public aquatic areas may require special approval and/or permits. Consult with local state agencies, if required.

USE RESTRICTIONS

- Do not apply to intertidal or estuarine areas.
- Do not exceed 400 ppb of this product during any one application.
- Do not re-treat the same section of water with this product more than 6 times per year.
- Do not retreat the same section of water within 28 days of application, except in areas with dense weed vegetation. In these areas, treat the remaining weeds within 10 to 14 days.
- In high density weed populations only treat 1/2 the water body at one time.
- Treated water may not be used for irrigation purposes on food crops until at least five (5) days after application.
- Do not use in water utilized for crawfish farming.

USE PRECAUTIONS

- There is no post-application holding restriction against use of treated water for drinking or recreational purposes (e.g. swimming, fishing).
- Treated water may be used for irrigation purposes on turf and landscape ornamentals as outlined in the *Irrigation Restrictions Following Application* table.

IRRIGATION RESTRICTIONS FOLLOWING APPLICATION

Application Method	Application Rate	Average Water Depth	Turf and Landscape Ornamentals	Ornamentals grown for production in Greenhouse and Nursery
Surface Spray	6 to 12 oz per surface acre	Greater than 3 feet	None	5 days
		Less than 3 feet	12 hours	5 days
Subsurface	Less than 200 ppb	N/A	1 day	5 days
	200 to 300 ppb	N/A	2 days	5 days
	300 to 400 ppb	N/A	3 days	5 days

SPRAY DRIFT MANAGEMENT

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather-related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making decisions.

Do not spray this product under circumstances where spray droplets may drift on to unprotected persons, or plantings of food, forage or crops that might be damaged, or rendered unfit for sale, use or consumption. These precautions are not applicable for subsurface injection by closed systems.

- Use the largest droplet size consistent with acceptable efficacy. Formation of very small droplets may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible and by avoiding excessive spray boom pressure. For ground boom and aerial applications, use medium or coarser spray nozzles according to ASAE 572 definition for standard nozzles or a volume mean diameter (VMD) of 300 microns or greater for spinning atomizer nozzles.
- Make aerial, ground or watercraft-based surface applications when wind velocity favors on-target product deposition. Apply only when the wind speed is less than or equal to 10 mph.
- Do not make aerial or ground applications into areas of temperature inversions. Inversions are characterized by stable air and increasing temperatures with increasing distance above the ground. Mist or fog may indicate the presence of an inversion in humid areas. Where permissible by local regulations, the applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.
- Low humidity and high temperatures increase the evaporation rate of spray droplets, and therefore the likelihood of increased spray drift. Avoid spraying during conditions of low humidity and/or high temperatures.

Properly maintain and calibrate all aerial, ground and water based application equipment.

Where states have more stringent regulations, observe them.

APPLICATION AND SPRAYER INFORMATION

Mixing Instructions

- Mix with water having pH of 5 to 7. If pH is higher than 7, use an appropriate buffer to reduce pH to desirable range.
- Fill clean spray tank 1/2 full of desired level with water and add buffering agent if necessary.
- Add the required amount of this product to the spray tank while agitating.
- Fill spray tank to desired level with water. Ensure that this product is thoroughly mixed before making applications. Continue agitation until spray solution has been applied.
- Mix only the amount of spray solution that can be applied the day of mixing. Apply this product within 48 hours of mixing.

ADDITIVES

When applying this product to the foliage of floating or emerged aquatic weeds, mix with an adjuvant approved for use in aquatic sites. Mix this product with a non-ionic surfactant containing at least 80% active ingredient. Follow adjuvant manufacturer's label rates. Verify mixing compatibility by a jar test before using.

JAR TEST TO DETERMINE COMPATIBILITY OF ADJUVANTS AND THIS PRODUCT

Perform a jar test before mixing commercial quantities of this product, when using this product for the first time, when using new adjuvants or when a new water source is being used.

1. Add 1 pint of the water to a quart jar. Use water from the same source and temperature as which will be used in the spray tank mixing operation.
2. Add 1 milliliter of this product to the quart jar for every 3 fl oz of this product per acre being applied (4 ml if 12 fl oz per acre is the desired rate of this product), gently mix until product goes into suspension.
3. Add 1 milliliter of non-ionic surfactant, gently mix.
4. Place cap on jar, invert 10 times, let stand for 15 minutes, evaluate.
5. An ideal tank mix combination will be uniform. If any of the following conditions are observed question the choice of adjuvant:
 - a) Layer of oil or globules on the mixture's surface.
 - b) Flocculation: fine particles in suspension or as a layer on the bottom of the jar.
 - c) Clabbering: Thickening texture (coagulated) like gelatin.

Sprayer Cleanup

If spray equipment is dedicated to application of aquatic herbicides, the following steps are to clean the spray equipment:

- Completely drain the spray tank and rinse the application equipment thoroughly, including the inside and outside of the tank and all in-line screens.

If spray equipment will be used for purposes other than applying aquatic herbicides, it must be thoroughly cleaned following application of this product. The following steps must be used to clean the spray equipment:

1. Completely drain the spray tank and rinse the application equipment thoroughly, including the inside and outside of the tank and all in-line screens.
2. Fill the tank with clean water and flush all hoses, booms, screens and nozzles.
3. Top off tank with clean water.
4. Circulate through sprayer for 5 minutes.
5. Then flush all hoses, booms, screens and nozzles for a minimum of 15 minutes.
6. Drain tank completely.
7. Remove all nozzles and screens and rinse them with clean water.

AERIAL APPLICATION

To obtain satisfactory weed control, aerial application of this product, must provide uniform coverage of surface weeds and sufficient contact time. When applied by air, this product may not provide adequate control of some submersed weeds. Do not apply by air when significant drift on to non-target plants may occur or when wind velocity is more than 10 mph. Avoid spraying this product within 200 feet of dwellings, adjacent sensitive crops or environmentally sensitive areas. To obtain satisfactory application and avoid drift, the following directions must be observed:

Volume and Pressure

Apply this product in a minimum of 5 gallons of water per acre with a maximum spray pressure of 40 PSI. Application at less than 5 gallons per acre may not provide adequate weed control. Higher gallonage applications provide more consistent weed control.

Nozzles and Nozzle Operation

Use nozzles that produce flat or hollow cone spray patterns. Use non-drip type nozzles including diaphragm type nozzles to avoid unwanted discharge of spray solution. The nozzle must be directed toward the rear of the aircraft, at an angle between 0° and 15° downward. Do not place nozzles on the outer 25% of the wings or rotors.

Adjuvants

Refer to the additive section or the tank mix partners label for adjuvant specifications.

DIRECTIONS FOR USE

TO CONTROL FLOATING AND EMERGED WEEDS USING SURFACE APPLICATION

This product will control weeds and algae listed in Table 1 when applied as a broadcast spray with appropriate equipment. For best results, apply this product to the foliage of actively growing weeds.

Table 1. Floating and Emerged Weeds

Common Name	Scientific Name
Alligator Weed	<i>Alternanthera philoxeroides</i>
Duckweed*	<i>Lemna</i> spp.
Frog's-bit	<i>Limnobium spongia</i>
Mosquito Fern	<i>Azolla</i> spp.
Water Fern	<i>Salvinia</i> spp.
Water Lettuce	<i>Pistia stratiotes</i>
Watermeal*	<i>Wolffia</i> spp.
Water Pennywort	<i>Hydrocotyle</i> spp.
Filamentous algae	<i>Pithophara</i>
Filamentous algae	<i>Cladophora</i>

* Coverage is essential for effective duckweed and watermeal control. Any duckweed and/or watermeal escapes left in the water column will quickly re-infest the water body. Apply 200 ppb concentration throughout the water body to control duckweed and watermeal.– see **DIRECTIONS FOR USE TO CONTROL SUBMERSED AND FLOATING WEEDS USING SUBSURFACE APPLICATIONS** section for additional application information.

Surface Application

Apply this product as a broadcast spray at 6 to 12 fl oz of formulated product per acre plus an adjuvant approved for use in aquatics.

This product is a contact herbicide that quickly degrades in the water column so plants that do not initially come in contact with the herbicide will not be controlled. Apply this product in a minimum of 30 gallons of water per acre to all areas of the water body where weeds exist. Coverage is essential for effective control as all floating weeds need to be exposed to lethal concentrations in all parts of the water body. Any untreated escapes or re-introductions of plants that were not treated will reestablish in areas where surface weeds had previously been controlled. If a second application is required to provide control, make a treatment once the return of these weeds is first observed, but no sooner than 28 days after the last treatment.

Application of this product during early morning hours may enhance weed control. When applying to densely packed actively growing surface weeds, ensure adequate coverage. Rapid decomposition of vegetation resulting from herbicide treatment can result in loss of oxygen in water. A sudden decrease in dissolved oxygen can result in fish suffocation. If aquatic vegetation is dense, treat floating surface weeds in sections to avoid a rapid decrease in dissolved oxygen.

This product may be tank mixed with 2,4-D, diquat, glyphosate or other registered foliar applied herbicides for enhanced control of floating and emergent weeds.

Consult a manufacturer's label for specific rate restrictions and weeds controlled. Always follow the most restrictive label restrictions and precautions for all products used when making applications involving tank mixes.

Application Equipment

Apply this product with sprayers equipped with nozzles designed to deliver the desired spray pressure and spray volume. Apply by backpack or handgun sprayer, airboat, helicopter, airplane or other application equipment that will ensure thorough coverage of target plant foliage.

DIRECTIONS FOR USE

TO CONTROL SUBMERSED AND FLOATING WEEDS USING SUBSURFACE APPLICATIONS

This product will control submersed and floating weeds listed in Table 2, *Submersed and Floating Weeds Controlled by Subsurface Application*, when applied subsurface with appropriate equipment.

Table 2. Submersed and Floating Weeds Controlled by Subsurface Application

Common Name	Scientific Name
Coontail	<i>Ceratophyllum demersum</i>
Duckweed	<i>Lemna</i> spp.
Fanwort	<i>Cabomba caroliniana</i>
Hydrilla	<i>Hydrilla verticillata</i>
Hygrophila	<i>Hygrophila polysperma</i>
Naiad, Southern	<i>Najas guadalupensis</i>
Pondweed, Curlyleaf	<i>Potamogeton crispus</i>
Pondweed, Sago	<i>Potamogeton pectinatus</i>
Pondweed, Variable-Leaf	<i>Potamogeton diversifolius</i>
Water Fern	<i>Salvinia</i> spp.
Water Lettuce	<i>Pistia stratiotes</i>
Watermeal	<i>Wolffia</i> spp.
Watermilfoil, Eurasian	<i>Myriophyllum spicatum</i>
Watermilfoil, Variable-Leaf	<i>Myriophyllum heterophyllum</i>

Subsurface Treatment

Apply this product at a rate that will produce an initial concentration of 200 to 400 ppb (of active ingredient flumioxazin) in the water column.

This product is rapidly absorbed by target plants, but also breaks down quickly in water with a pH greater than 8.5. The pH of water surrounding mats of submersed vegetation can exceed 8.5 by early to mid-day, due to photosynthetic processes. Application of this product under these conditions may provide only partial weed control, and regrowth is likely. For best control, apply this product in a minimum of 30 gallons of water per acre in the early morning to actively growing weeds and early in the season before surface matting occurs. Complete coverage and sufficient contact time of submersed weeds with this product is required for optimal performance. Application of this product with subsurface trailing hoses designed to distribute the herbicide within the plant stand will provide more effective and longer term control of submersed weeds. Use Table 3, *Subsurface Application Rates* to determine the amount of this product needed to achieve desired concentration at different water depths. Use higher concentrations when weed biomass is heavy and/or weeds are more mature and topped out. Any untreated plants that are left in the water column can re-infest treated areas that had previously been controlled. If a second application is required to provide control, make a treatment once the return of these weeds is first observed, but no sooner than 28 days after the last treatment.

When applying this product to densely packed actively growing submersed weeds, a rapid decomposition of vegetation resulting from herbicide treatment can result in loss of oxygen in water. A sudden decrease in dissolved oxygen can result in fish suffocation. If aquatic vegetation is dense, treat submersed weeds in sections to avoid a rapid decrease in dissolved oxygen.

This product may be tank mixed with other registered submersed applied herbicides for enhanced control of submersed and floating weeds.

Application Equipment for Water Column Treatment

To improve distribution in the water column and ensure adequate coverage, when possible apply this product with subsurface trailing hoses in order to place the herbicide under the surface and throughout the biomass of aquatic vegetation. Keep swath width to a minimum in order to maximize contact with submersed aquatic vegetation. In small shallow water bodies, surface sprays may be required to apply this product. Apply by backpack or handgun sprayer or other application equipment that will ensure adequate coverage of target plant.

Information on Hydrilla Control in Florida

Apply this product as a subsurface treatment for hydrilla control. For best control of hydrilla apply during the late Winter/early Spring and/or early to late Fall. Efficacy of this product will be enhanced at these timings due to lower potential biomass present and lower pH of the water. If applied to mature topped out hydrilla, this product will cause some discoloration and loss of growing tips, but regrowth will be rapid.

Tank mixing this product with other registered herbicides is recommended, especially if hydrilla is approaching maturity or biomass is heavy.

Subsurface Application Rates

Water Depth (feet)	Pints of This Product Required Per Surface Acre to Achieve Desired Water Concentration		
	200 ppb	300 ppb	400 ppb
1	1.1	1.6	2.1
2	2.1	3.2	4.2
3	3.2	4.8	6.4
4	4.2	6.4	8.5
5	5.3	8.0	10.6

Example: to achieve an initial concentration of 200 ppb of flumioxazin in a 4 foot deep water column, apply 4.2 pints of this product per surface acre.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE

Keep pesticide in original container. Store in a cool, dry, secure place. Do not put formulation or dilute spray solution into food or drink containers. Do not contaminate food or foodstuffs. Do not store or transport near feed or food. Not for use or storage in or around the home. For help with any spill, leak, fire or exposure involving this material, call day or night **CHEMTREC (800) 424-9300**.

PESTICIDE DISPOSAL

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING:

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 1/4 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 two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

WARRANTY DISCLAIMER

The directions for use of this product must be followed carefully. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, (1) THE GOODS DELIVERED TO YOU ARE FURNISHED "AS IS" BY MANUFACTURER OR SELLER AND (2) MANUFACTURER AND SELLER MAKE NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND TO BUYER OR USER, EITHER EXPRESS OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE, WITH REGARD TO THE PRODUCT SOLD, INCLUDING, BUT NOT LIMITED TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, USE, OR ELIGIBILITY OF THE PRODUCT FOR ANY PARTICULAR TRADE USAGE. UNINTENDED CONSEQUENCES, INCLUDING BUT NOT LIMITED TO INEFFECTIVENESS, MAY RESULT BECAUSE OF SUCH FACTORS AS THE PRESENCE OR ABSENCE OF OTHER MATERIALS USED IN COMBINATION WITH THE GOODS, OR THE MANNER OF USE OR APPLICATION, INCLUDING WEATHER, ALL OF WHICH ARE BEYOND THE CONTROL OF MANUFACTURER OR SELLER AND ASSUMED BY BUYER OR USER. THIS WRITING CONTAINS ALL OF THE REPRESENTATIONS AND AGREEMENTS BETWEEN BUYER, MANUFACTURER AND SELLER, AND NO PERSON OR AGENT OF MANUFACTURER OR SELLER HAS ANY AUTHORITY TO MAKE ANY REPRESENTATION OR WARRANTY OR AGREEMENT RELATING IN ANY WAY TO THESE GOODS.

LIMITATION OF LIABILITY

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, IN NO EVENT SHALL MANUFACTURER OR SELLER BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, OR FOR DAMAGES IN THEIR NATURE OF PENALTIES RELATING TO THE GOODS SOLD, INCLUDING USE, APPLICATION, HANDLING, AND DISPOSAL. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, MANUFACTURER OR SELLER SHALL NOT BE LIABLE TO BUYER OR USER BY WAY OF INDEMNIFICATION TO BUYER OR TO CUSTOMERS OF BUYER, IF ANY, OR FOR ANY DAMAGES OR SUMS OF MONEY, CLAIMS OR DEMANDS WHATSOEVER, RESULTING FROM OR BY REASON OF, OR ARISING OUT OF THE MISUSE, OR FAILURE TO FOLLOW LABEL WARNINGS OR INSTRUCTIONS FOR USE, OF THE GOODS SOLD BY MANUFACTURER OR SELLER TO BUYER. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, ALL SUCH RISKS SHALL BE ASSUMED BY THE BUYER, USER, OR ITS CUSTOMERS. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BUYER'S OR USER'S EXCLUSIVE REMEDY, AND MANUFACTURER'S OR SELLER'S TOTAL LIABILITY SHALL BE FOR DAMAGES NOT EXCEEDING THE COST OF THE PRODUCT.

If you do not agree with or do not accept any of the directions for use, the warranty disclaimers, or limitations on liability, do not use the product, and return it unopened to the Seller, and the purchase price will be refunded.

Clipper is a registered trademark of Nufarm Americas Inc.

RV051618[1]



1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Clipper® SC Herbicide

EPA Reg. No.: 71368-114

Product Type: Herbicide

Company Name: Nufarm Americas Inc
11901 S. Austin Avenue
Alsip, IL 60803
1-855-280-6609

Telephone Numbers: For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,
Call CHEMTREC Day or Night: 1-800-424-9300
For Medical Emergencies Only, Call 1-877-325-1840

This product is an EPA FIFRA registered pesticide. Some classifications on this SDS are not exactly the same as on the FIFRA label. Certain sections are superseded by federal law governed by EPA for a registered pesticide. Please see Section 15. REGULATORY INFORMATION for explanation.

2. HAZARDS IDENTIFICATION

PHYSICAL HAZARDS:

Not Hazardous

HEALTH HAZARDS:

Not Hazardous

ENVIRONMENTAL HAZARDS:

Hazardous to aquatic environment, acute Category 1

Hazardous to aquatic environment, chronic Category 1

SIGNAL WORD

No Signal Word

HAZARD STATEMENTS

Very toxic to aquatic life with long-lasting effects.



PRECAUTIONARY STATEMENTS

Avoid unintended release to the environment.

Collect spillage.

Dispose of contents and container in accordance with local, state and federal regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NO.	% BY WEIGHT
Flumioxazin	103361-09-7	41 – 43.5
Propylene Glycol	57-55-6	5.7 – 6.3
Other Ingredients	Trade Secret	Trade Secret

Synonyms: 2-[7-fluoro-3,4-dihydro-3-oxo-4-(2-propynyl)-2H-1,4-benzoxazin-6-yl]-4,5,6,7-tetrahydro-1H-isoindole-1,3(2H)-dione

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

If Swallowed: Do not give any liquid to the person. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person. If symptoms develop, get medical advice.

If in Eyes: Hold eye open and rinse slowly and gently with water for several minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention if irritation persists. **If on Skin or Clothing:** Take off contaminated clothing. Wash with soap and water. Get medical attention if irritation or symptoms develop.

If Inhaled: Move person to fresh air. If symptoms develop, get medical advice.

Most Important symptoms/effects, acute and delayed: Skin exposure may cause slight irritation. May cause mild eye irritation.

Indication of Immediate medical attention and special treatment if needed: None expected.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Use extinguishing media suitable for surrounding materials. Dry chemical, carbon dioxide, foam, water spray or fog.

Special Fire Fighting Procedures: Firefighters should wear NIOSH approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Unusual Fire and Explosion Hazards: If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.

Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as fluorine compounds, and oxides of carbon and nitrogen.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

Methods for Cleanup and Disposal: Pump free liquid into an appropriate container. Absorb residual with inert absorbent material. Wash entire spill area with a detergent slurry, absorb and sweep into container for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE**HANDLING:**

Avoid contact with skin, eyes or clothing. Do not breathe spray mist or vapors. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/Personal Protective Equipment (PPE) immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

STORAGE:

Keep pesticide in original container. Store in a cool, dry, secure place. Do not put formulation or dilute spray solution into food or drink containers. Do not contaminate food or foodstuffs. Do not store or transport near feed or food. Not for use or storage in or around the home. For help with any spill, leak, fire or exposure involving this material, call day or night **CHEMTREC (800) 424-9300**.

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

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Engineering Controls:**

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

SAFETY DATA SHEET

Clipper® SC Herbicide

Personal Protective Equipment:

Eye/Face Protection: To avoid contact with eyes, wear goggles or safety glasses.

Skin Protection: To avoid contact with skin wear long-sleeved shirt and long pants, shoes plus socks, and chemical-resistant gloves made of any waterproof material. Washing facilities should be readily accessible to the work area.

Respiratory Protection: Not normally required. If vapors or mists or dusts exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
Flumioxazin	NE	NE	NE	NE	
Propylene Glycol	10 (WEEL)	NE	NE	NE	mg/m3

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Off white/milky liquid
Odor:	Moderately sour
Odor threshold:	No data available
pH:	6.38 (1% w/w dispersion in DIW @ 25° C)
Melting point/freezing point:	No data available
Initial boiling point and boiling range	No data available
Flash point:	Aqueous composition; >212° F (>100° C)
Evaporation rate:	No data available
Flammability:	No data available
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	1.157 g/mL @ 24° C
Solubility(ies):	No data available
Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	487.2 cPs @ 24° C; 266.8 cPs @ 42 ° C (50 RPM, Brookfield)

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Not reactive

Chemical Stability: This material is stable under normal handling and storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Excessive heat. Do not store near heat or flame.

Incompatible Materials: Strong oxidizing agents, such as chlorates, nitrates, and peroxides.

Hazardous Decomposition Products: Under fire conditions, may produce gases such as fluorine compounds, and oxides of carbon and nitrogen.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, Skin contact, Eye contact

Eye Contact: May cause mild irritation. Non-irritating to the eye based on toxicity studies.

Skin Contact: May cause mild irritation on prolonged or repeated exposure. Non-irritating to slight/mild irritation to the skin based on toxicity studies.

Ingestion: May be harmful if swallowed in large amounts. Low toxicity if ingested.

Inhalation: May cause minor irritation to the respiratory tract. Low toxicity if inhale

Symptoms of Exposure: None expected.

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Delayed, immediate and chronic effects of exposure: Adverse effects observed in animals exposed to high doses of flumioxazin technical for long periods of time included effects on blood, liver and kidney.

Toxicological Data:

Data from laboratory studies conducted are summarized below:

Oral: Rat LD₅₀: > 5,000 mg/kg (female)

Dermal: Rat LD₅₀: >5,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >2.10 mg/L (No mortality at highest dose tested)

Eye Irritation: Rabbit: Non-irritating

Skin Irritation: Rabbit: Slightly irritating (PDII=0.1)

Skin Sensitization: Not a contact sensitizer in the Local Lymph Node Assay (LLNA) in Mice.

Subchronic (Target Organ) Effects: Compound related effects of Flumioxazin Technical noted in rats following subchronic exposures at high dose levels were hematotoxicity including anemia, and increases in liver, spleen, heart, kidney and thyroid weights. In dogs, the effects produced at high dose levels included a slight prolongation in activated partial thromboplastin time, increased cholesterol and phospholipid, elevated alkaline phosphatase, increased liver weights and histological changes in the liver. The lowest no-observable-effect-level (NOEL) in subchronic studies was 30 ppm in the three-month toxicity study in rats.

Carcinogenicity / Chronic Health Effects: Repeated exposures to Flumioxazin Technical in animals have produced anemia and other blood formation changes, organ weight changes and changes in blood chemistry. Flumioxazin Technical did not produce cancer in life-time feeding studies in laboratory animals.

Reproductive Toxicity: Reproductive effects were observed in rats exposed to high levels of Flumioxazin Technical.

Developmental Toxicity: Birth defects were produced in the offspring of female rats exposed to Flumioxazin Technical. No effects were observed in rabbits.

Genotoxicity: Flumioxazin technical does not present a genetic hazard.

Assessment Carcinogenicity: None listed with ACGIH, IARC, NTP or OSHA.

12. ECOLOGICAL INFORMATION

Ecotoxicity: Flumioxazin technical is practically non-toxic to bees and avian species. It is slightly to moderately toxic to freshwater fish and moderately to highly toxic to aquatic invertebrates.

From studies conducted on Flumioxazin active ingredient:

96-hour LC ₅₀ Rainbow Trout:	2.3 mg/L	Bobwhite Quail Oral LD ₅₀ :	>2,250 mg/kg
96-hour LC ₅₀ Bluegill Sunfish	> 21 mg/L	Bobwhite Quail 8-day Dietary LC ₅₀ :	>5,620 ppm
48-hour EC ₅₀ Daphnia Magna :	> 5.5 mg/L	Mallard Duck Oral LD ₅₀ :	>2,250 mg/kg
96-hour LC ₅₀ Sheepshead Minnow:	>4.7 mg/L	Mallard Duck 8-day Dietary LC ₅₀ :	>5,620 ppm
96-hour LC ₅₀ Mysid Shrimp:	0.23 mg/L		
Acute Contact LC ₅₀ Honeybee:	105 µg/bee		

Environmental Fate:

Flumioxazin degrades rapidly in water and soil. Dissipation occurs by a combination of hydrolysis and microbial oxidation. Although flumioxazin dissipates rapidly, discrete intermediates do not accumulate and the ultimate environmental products are incorporated into soil organic matter and carbon dioxide. Based on column leaching studies and the short aerobic soil half-life, the potential for flumioxazin or its degradation products to leach in field agricultural soils is low. The low use rate and rapid soil dissipation results in low carryover potential to rotational crops.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide is a violation of Federal law.

Container Handling and Disposal:

Nonrefillable Containers 5 gallons or less: 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 and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 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 two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

SAFETY DATA SHEET

Clipper® SC Herbicide

Nonrefillable containers larger than 5 gallons: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. If recycling or reconditioning not available, puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke. Triple rinse or pressure 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 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.

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.

Refillable containers larger than 5 gallons: Refillable container. 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 a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this MSDS.

DOT

< 119 Gallons per finished container

Non Regulated

≥ 119 Gallons per finished container

UN 3082, Environmentally hazardous substance, liquid, n.o.s., (Flumioxazin), 9, III, Marine Pollutant

IMO / IMDG

UN 3082, Environmentally hazardous substance, liquid, n.o.s., (Flumioxazin), 9, III, Marine Pollutant

IATA

UN 3082, Environmentally hazardous substance, liquid, n.o.s., (Flumioxazin), 9, III, Marine Pollutant

15. REGULATORY INFORMATION

EPA FIFRA INFORMATION

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

Harmful if inhaled or absorbed through the skin. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with skin, eyes or clothing.

U.S. FEDERAL REGULATIONS

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):

Chronic Health

Section 313 Toxic Chemical(s):

None

Reportable Quantity (RQ) under U.S. CERCLA:

None

RCRA Waste Code:

SAFETY DATA SHEET

Clipper® SC Herbicide

Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65: Not Listed.

16. OTHER INFORMATION

National Fire Protection Association (NFPA) Hazard Rating:

Rating for this product: Health: 1 Flammability: 1 Reactivity: 0

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Nufarm Americas Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Nufarm Americas Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS AND ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED.

Date of Issue: October 11, 2018

Supersedes: May 29, 2018

Captain® XTR

Liquid Copper Algacide

SPECIMEN



For use in still or flowing aquatic sites including: golf course, ornamental, fish, irrigation and fire ponds and aquaculture including fish and shrimp; fresh water lakes, ponds, and fish hatcheries; potable water reservoirs, rivers, streams, bays and coves; and crop and non-crop irrigation and drainage systems (canals, laterals and ditches) and chemigation systems.

Active Ingredient

Copper Ethanolamine Complex†

(Mixed CAS#'s 82027-59-6 & 14215-52-2) 28.2%

Other Ingredients 71.8%

TOTAL 100.0%

†Metallic copper equivalent = 9.1%

Keep Out of Reach of Children

DANGER / PELIGRO

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

Refer to inside of label booklet for additional precautionary information and *Directions for Use* including *First Aid* and *Storage and Disposal*.

NOTICE: Read the entire label before using. Use only according to label directions. Before buying or using this product, read *Terms and Conditions of Use*, *Warranty Disclaimer*, *Inherent Risks of Use* and *Limitation of Remedies* inside label booklet. If terms are unacceptable, return at once unopened.

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SePRO Corporation

11550 North Meridian Street, Suite 600
Carmel, IN 46032, U.S.A.

EPA Reg. No. 67690-9
FPL20131205

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

KEEP OUT OF REACH OF CHILDREN

DANGER / PELIGRO

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

Corrosive. Causes irreversible eye damage. Causes skin irritation. Harmful if swallowed. Harmful if absorbed through skin. Harmful if inhaled. Do not get in eyes, on skin, or on clothing. Avoid breathing mist or spray vapor. When handling, wear protective eyewear, clothing, and chemical-resistant gloves as described under the section of this label pertaining to Personal Protective Equipment (PPE). Wash skin thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.

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

FIRST AID

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.
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 swallowed	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow.• Do not induce vomiting unless told to do so by a poison control center or doctor.• Do not give anything to an unconscious person.
If inhaled	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.• Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. In case of emergency endangering health or the environment involving this product, call **INFOTRAC at 1-800-535-5053**.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are barrier laminate, butyl rubber ≥ 14 mils, or nitrile rubber ≥ 14 mils. If you want more options, follow the instructions for category A on an EPA chemical-resistant category selection chart.

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

- Coveralls worn over short-sleeved shirt and short pants;
- Socks and chemical resistant footwear;
- Chemical-resistant gloves (such as nitrile or butyl rubber);
- Protective eyewear (such as goggles, safety glasses, or face shield); and
- A chemical-resistant apron when mixing and loading or cleaning equipment.

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 this product's concentrate. Do not reuse them.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash the outside of gloves before removing.
- 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.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and aquatic invertebrates. Waters treated with this product may be hazardous to aquatic organisms. Treatment of aquatic weeds and algae can result in oxygen loss from decomposition of dead algae and weeds. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, do not treat more than ½ of the water body to avoid depletion of oxygen due to decaying vegetation. Wait at least 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Consult with the State or local agency with primary responsibility for regulating pesticides before applying to public waters, to determine if a permit is required.

Certain water conditions including low pH (≤ 6.5), low dissolved organic carbon (DOC) levels (3.0 mg/L or lower), and "soft" waters (i.e. alkalinity less than 50 mg/L), increases the potential acute toxicity to non-target aquatic organisms. Do not use in waters containing trout or other fish species that are highly sensitive to copper if the alkalinity is less than 50 ppm. Fish toxicity generally decreases when the hardness of water increases. Captain XTR must not be used in ornamental ponds containing Koi.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Read all directions for use carefully before applying this product. Use only according to label directions.

Do not apply this product in a way that concentrate will contact workers or other persons, either directly or through drift; only protected handlers may be in close proximity to the mixing area or application equipment while in use.

Obtain Required Permits: Consult with appropriate state or local pesticide and/or water authorities before applying this product in or around public waters. Permits and posting or treatment notification may be required by state, Tribal, or local public agencies.

PRODUCT INFORMATION

Captain XTR is a chelated copper formulation that is effective in controlling a broad range of green and blue-green (cyanobacteria) algae, including filamentous, planktonic and macrophytic. Captain XTR is also an effective herbicide on submersed weed species with susceptibility to copper. The ethanolamines in Captain XTR reduce the precipitation of copper with carbonates and bicarbonates in the water.

Use the lower concentrations/rates in softer water (<50 ppm alkalinity) or when treating species with greater susceptibility to Captain XTR; use higher concentrations/rates in harder water (>50 ppm alkalinity) and when treating heavier infestations and/or less susceptible species.

Treatment Notes

Performance of Captain XTR is enhanced under certain conditions. It is recommended to consult a SePRO Aquatic Specialist for guidance in implementing a treatment program to achieve optimal results. The following apply to the use of Captain XTR to achieve optimum effectiveness:

- Treat when growth first begins to appear (if possible) or when target vegetation is actively growing.
- Apply in a manner that will ensure even distribution of Captain XTR within the treatment area.
- Use a high-pressure surface spray application to break up dense floating algal mats.
- In heavily infested areas, a second application may be necessary. Retreat areas if regrowth begins to appear or if seasonal control is desired. Repeating application of Captain XTR too soon after initial application may have no effect.

Precautions and Restrictions

- Do not apply Captain XTR directly to, or otherwise permit it to come into contact with any desirable plants as injury may result.
- Do not apply in such a way that concentrated Captain XTR comes in contact with crops, ornamentals, grass or other desirable plants.
- Wash spray equipment thoroughly before and after each application.
- Contents may cause bluing where marcite has been etched.

Spray Drift Management

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

Droplet Size

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

Wind Speed

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

Temperature Inversions

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

Other State and Local Requirements

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

Equipment

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

Additional requirements for aerial applications:

- The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.
- Release spray at the lowest height consistent with efficacy and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.
- When applications are made with a crosswind, the swath must be displaced downwind. The applicator must compensate for this displacement at the up and downwind edge of the application area by adjusting the path of the aircraft upwind.

Additional requirements for ground boom application:

Do not apply with a nozzle height greater than 4 feet above the crop canopy.

APPLICATION INFORMATION

For aquatic weed control (including algae and vascular plants), do not exceed a concentration of 1.0 ppm copper during any single application; wait a minimum of 14 days between retreatments. (When treating aquaculture ponds when fish are present, do not exceed a concentration of 0.4 ppm during any single application when targeting nuisance algae; wait a minimum of 10 days between treatments.)

Application Methods and Rates

Surface Spray/Injection Algaecide Application

For effective control, proper rates of Captain XTR should be maintained for a minimum of three hours. The application concentrations/rates in **Table 1** are based on static or minimal flow situations. Where significant dilution occurs from untreated waters or loss of water, within a three hour period, Captain XTR may have to be metered in (refer to the *Drip System or Metering Pump Application for Flowing Water Treatments* section of this label).

Identify the algae growth present as one of the following types: planktonic (suspended), filamentous (matforming), or macrophytic algae (chara/nitella).

Determine the surface acreage (1 acre = 43,560 ft.²) and average depth of infested area.

Refer to chart below to determine gallons of Captain XTR to apply per surface acre.

Algae Type or Species	Dose	Rates	Treatment Comments
	PPM Copper	Gallons per Acre Foot	
Planktonic (Suspended)	0.2 - 1.0 [†]	0.6 - 3.0	Apply lower rates for light infestations. Use higher rates on heavy blooms and where algae masses are clumped and accumulated.
Filamentous (Mat-forming)	0.2 - 1.0 [†]	0.6 - 3.0	Apply lower rates for early season applications, light infestations or treatment of regrowth. Apply higher rates on surface mats and species such as <i>Pithophora</i> , <i>Cladophora</i> , <i>Lyngbya</i> , and <i>Hydrodictyon</i> .
Macrophytic (Chara/Nitella/Starry Stonewort)	0.4 - 1.0	1.2 - 3.0	Apply lower rates for new infestations or early season growth. Apply higher rates on older, established calcified plants. Apply as close to plant growth as possible.

[†] For planktonic and filamentous algae, Captain XTR may be applied up to 1.0 ppm when growth conditions require higher rates and for difficult to control species.

For dense infestations of filamentous algae or where the species of *Hydrodictyon*, *Cladophora* or *Pithophora* are present, apply the higher rate in the rate range. Filamentous algae species are easier to control before floating to the water's surface (when they are forming on the pond/lake bottom). An adjuvant, such as d-limonene or similar surfactant, may be added for enhanced control of floating mats or difficult to control species of algae. Follow surfactant labeling instructions for application rates and use directions.

For planktonic (suspended) algae and freefloating filamentous algae mats, application rates should be based on treating to depths where algae are present (e.g. the upper 3 to 4 feet of water). For dense infestations and in certain other situations, it may be necessary to calculate rates based on the depth of known algae infestation (e.g. > 4 feet) or require treating the entire water column in the target area. To calculate the application rate per surface acre, multiply the application rate in Table 1 (0.6 to 3.0 Gallon per Acre Foot) by the average depth of infestation, or average water depth if infestation reaches the entire water column.

As a surface or subsurface application, Captain XTR may be applied diluted or undiluted, whichever is most suitable to ensure uniform coverage of the area to be treated. Dilution with water may be necessary at the lower application rates. Dilute the required amount of Captain XTR with enough water to ensure even distribution in the treated area with the type of equipment being used. For best results, dilute Captain XTR in water to provide a minimum spray mix of 20 to 50 gallons per acre; in areas with heavy infestations of filamentous algae, a total tank mix of > 50 gallons per acre may be necessary; break up floating algae mats before spraying or while application is being made.

Submersed Plant Control Applications

Captain XTR can be applied to control hydrilla (*Hydrilla verticillata*), egeria (*Egeria densa*), and other aquatic weeds with susceptibility to copper. Apply Captain XTR at a rate to achieve 0.75 to 1.0 ppm copper (2.3 to 3.0 Gallons Captain XTR/Acre foot). In heavily infested areas, a second application after the 14 day retreatment interval may be necessary.

TANK MIXES WITH OTHER AQUATIC ALGAECIDES AND HERBICIDES

Captain XTR may be mixed with other herbicides or algaecides registered for aquatic use provided that no labeling prohibits such mixing. Captain XTR can be tank mixed with other herbicides to improve efficacy; and to control algae in areas where heavy algae growth may cover target submersed plant species and interfere with herbicide exposure. Do not exceed any labeled rate or dose of any of the products in the combination. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures. To ensure compatibility, a jar test is recommended before field application of any tank mix combination. It is recommended to consult with SePRO Corporation for latest tank mix recommendations.

NOTE: Tank mixing or use of Captain XTR with any other product which is not specifically listed on the Captain XTR label shall be at the exclusive risk of the user, applicator and/or application adviser, to the extent allowed by applicable law.

Captain XTR and Endothal

Captain XTR may be applied as a tank mix or simultaneously injected or used with the dipotassium salt of endothal (e.g. Cascade®) or the mono (N,N-dimethylalkylamine) salt of endothal (e.g. Teton®) to broaden the weed control spectrum and/or reduce injection times or rates in canals, ditches, and laterals. In flowing canals, apply Captain XTR via drip or injection at a rate of 0.1 to 1.0 ppm (See Table 2) in conjunction with Teton (0.05 – 2.0 ppm) or Cascade (0.35-3.0 ppm) for a minimum of one hour.

Hydrilla Control – Captain XTR + Diquat Tank Mix

Captain XTR can be mixed with diquat (diquat dibromide) in a 2:1 ration of Captain XTR:Diquat (e.g. 4 gallons Captain XTR and 2 gallons diquat [e.g. Littora®- 2 lbs a.i./gallon] per acre in waters with average depth of 4 feet). Lower rates of Captain XTR may also enhance the activity of diquat. Captain XTR should be applied at a minimum of 0.1 ppm in combination with diquat. Higher rates may be needed in areas with dense weeds.

Drip System or Metering Pump Application for Flowing Water Treatments For Use in Potable Water, Canals, Ditches, and Irrigation and Drainage Systems

For optimal control, apply Captain XTR as soon as algae begin active growth or interfere noticeably with normal delivery of water (clogging of lateral headgates, suction screens, weed screens, and siphon tubes). Delaying treatment could perpetuate the problem causing massing and compacting of plants. Heavy infestations and low flow may cause poor distribution resulting in unsatisfactory control. Under these conditions repeated applications or increasing water flow rate during application may be necessary.

Prior to treatment it is important to accurately determine water flow rates. In the absence of weirs, orifices, or similar devices, which give accurate waterflow measurements, volume of flow can be estimated by the following formula:

$$\text{Cubic feet per second (cfs)} = \text{average width (feet)} \times \text{average depth (feet)} \times \text{average velocity}^\dagger \text{ (feet/second)} \times 0.9$$

† The velocity can be estimated by determining the length of time it takes a floating object to travel a defined distance. Divide the distance (feet) by the time (seconds) to estimate velocity (feet/seconds). This measure should be repeated 3 times at the intended application site and then calculate the average velocity.

After accurately determining the water flow rate in cfs or gallons/minute, find the corresponding Captain XTR rate in Table 2 or use the below formula.

$$\text{cfs} \times \text{desired concentration of copper (ppm)} = \text{quarts/hour of application}$$

Water Flow Rate		PPM Copper	Captain Rate	
CFS	Gal./min.		Quart/ hr.	mL / min.
1	450	0.2 - 1.0	0.2 - 1.0	3.2 - 15.7
2	900	0.2 - 1.0	0.4 - 2.0	6.3 - 31.5
3	1,350	0.2 - 1.0	0.6 - 3.0	9.5 - 47.3
4	1,800	0.2 - 1.0	0.8 - 4.0	12.6 - 63.0
5	2,250	0.2 - 1.0	1.0 - 5.0	15.8 - 78.5
10	4,500	0.2 - 1.0	2.0 - 10.0	31.5 - 157.7
100	45,000	0.2 - 1.0	20 - 100.0	315 - 1,577

Calculate the amount of Captain XTR needed to maintain the drip rate for a treatment period of 3 hours by multiplying either:

$$\text{Quarts / hr} \times 3; \text{ Milliliters / Minute} \times 180; \text{ or Fluid ounces / Minute} \times 180$$

Rates will target 1.0 ppm copper concentration in the treated water for the treatment period. Lower concentrations may be used on highly susceptible algae species or if longer exposure times are maintained. Introduction of the chemical should be made in the channel at weirs or other turbulence-creating structures to promote the dispersion of the chemical. For injection periods longer than three hours (180 minutes), calculate the amount of Captain XTR needed by multiplying the rate by the desired time in minutes or hours, as appropriate.

Use a drum or tank equipped with a valve or other volume control device that can be calibrated to maintain a constant drip rate. Use a stopwatch and appropriate measuring container to set the desired drip rate. Readjust accordingly if the canal flow rate changes during the treatment period. A small pump or other metering device may be used to meter Captain XTR into the water more accurately. Application can be made using diluted or undiluted material.

Results can vary depending upon species and density of algae and vegetation, desired distance of control and flow rate, and impact of water quality on efficacy. Periodic maintenance treatments may be required to maintain seasonal control. It is recommended to consult a SePRO Aquatic Specialist to determine optimal use rate, location of treatment stations and treatment period under local conditions.

Slug Application Method for Flowing Irrigation Canals with no Functioning Potable Water Intakes

Do not use this method of application in flowing canals with functioning potable water intakes at or downstream from the application site.

For optimal control, apply Captain XTR as soon as algae begin active growth or interfere noticeably with normal delivery of water. Heavy infestations and low flow may cause poor distribution resulting in unsatisfactory control. Under these conditions repeated applications or increasing water flow rate during application may be necessary. Apply Captain XTR into the irrigation canal or lateral at 0.05 (6.4 fluid ounces) to 0.55 gallons (70 fluid ounces) per CFS as a slug or dump application (see above for determining CFS). Depending upon water hardness, alkalinity, velocity and algae conditions, a slug application is typically required every 5 to 30 miles. High water hardness or alkalinity levels may require the use of higher rates within the rate range above to achieve control. When velocity levels are higher (>1 foot per second) distance between drop stations for slug applications can be increased.

Chemigation System Application

Captain XTR may be applied for the maintenance of chemigation systems. To control algae in chemigation systems Captain XTR should be applied continuously during water application. For continuous addition application apply 0.91 - 9.1 gallons of Captain XTR per 1,000,000 (one million) gallons of water (0.3 - 3.0 gallons of Captain XTR per acre-foot of water). This will produce a concentration of 0.1 to 1.0 ppm of copper. Do not exceed 1.0 ppm of copper or 0.91 gallons of Captain XTR per 100,000 gallons of water. For additional guidance regarding specific calibrations or application techniques contact application equipment manufacturer, supplier, or pest control advisor. It is not necessary to agitate or dilute Captain XTR in the supply tank before application to chemigation systems.

Copper Concentration (ppm)	Amount of Captain			
	Per Acre-foot		Per Million Gallons	
	Gallons	Liters	Gallons	Liters
0.1	0.3	1.1	0.9	3.4
0.2	0.6	2.3	1.8	6.8
0.3	0.9	3.4	2.8	10.6
0.4	1.2	4.5	3.7	14.0
0.5	1.5	5.7	4.6	17.4
0.6	1.8	6.8	5.5	22.8
0.7	2.1	7.9	6.4	24.2
0.8	2.4	9.1	7.3	27.6
0.9	2.7	10.2	8.3	31.4
1.0	3.0	11.3	9.1	34.4

CHEMIGATION SYSTEM APPLICATION

- Apply Captain XTR only through sprinkler and drip irrigation systems including: center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move; flood (basin), furrow, border or drip (trickle) systems.
- Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- If you have questions about calibration, contact your SePRO Aquatic Specialist, State Extension Service, equipment manufacturer, or other experts.
- Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place (refer to the *Chemigation Systems Connected to a Public Water Supply* section of this label).
- A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise. The injection system should be inspected, calibrated, and maintained before application of Captain XTR begins.

Chemigation Systems Connected to a Public Water Supply

- Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, back flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.
- The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

Sprinkler Chemigation Requirements

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

Floor (Basin), Furrow and Border Chemigation Requirements

- Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from back flow if water flow stops.
- Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:
 - The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.
 - The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
 - The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
 - The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
 - The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
 - Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Drip (Trickle) Chemigation Requirements

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

STORAGE AND DISPOSAL

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

Pesticide Storage: Store in a cool dry place. Do not store near feed or foodstuffs. In case of leak or spill, use absorbent materials to contain liquids and dispose in a manner consistent with the pesticide disposal instructions.

Pesticide Disposal: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Handling

Nonrefillable Container. DO NOT reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Triple rinse containers small enough to shake (capacity \leq 5 gallons) 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 $\frac{1}{4}$ 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 two more times.

Triple rinse containers too large to shake (capacity $>$ 5 gallons) 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.

Pressure rinse as follows: Empty the remaining contents into application equipment or 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.

Refillable Container. Refill this container with pesticide only. **DO NOT** reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

Triple rinse as follows: 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 two more times. When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with a pesticide product. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

TERMS AND CONDITIONS OF USE

If terms of the following *Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies* are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. Otherwise, to the extent consistent with applicable law, use by the buyer or any other user constitutes acceptance of the terms under *Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies*.

WARRANTY DISCLAIMER

SePRO Corporation warrants that the product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, SEPRO CORPORATION MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

INHERENT RISKS OF USE

It is impossible to eliminate all risks associated with use of this product. Plant injury, lack of performance, or other unintended consequences may result because of such factors as use of this product contrary to label instructions (including conditions noted on the label such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of SePRO Corporation or the seller. To the extent consistent with applicable law, all such risks shall be assumed by buyer.

LIMITATION OF REMEDIES

To the extent consistent with applicable law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories) shall be limited to, at SePRO Corporation's election, one of the following:

- (1) Refund of purchase price paid by buyer or user for the product bought, or
- (2) Replacement of amount of the product used.

To the extent consistent with applicable law, SePRO Corporation shall not be liable for losses or damages resulting from handling or use of this product unless SePRO Corporation is promptly notified of such losses or damages in writing. In no case shall SePRO Corporation be liable for consequential or incidental damages or losses.

The terms of the *Warranty Disclaimer, Inherent Risks of Use, and this Limitation of Remedies* cannot be varied by any written or verbal statements or agreements. No employee or sales agent of SePRO Corporation or the seller is authorized to vary or exceed the terms of the *Warranty Disclaimer* or this *Limitations of Remedies* in any manner.

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SePRO Corporation
11550 North Meridian Street, Suite 600
Carmel, IN 46032, U.S.A.



SAFETY DATA SHEET

Captain® XTR Algaecide

Section 1. Identification

GHS product identifier : Captain® XTR Algaecide

Other means of identification : Not available.

EPA Registration No. : 67690-9

Relevant identified uses of the substance or mixture

Aquatic Algaecide.

Supplier's details : SePRO Corporation
11550 North Meridian Street
Suite 600
Carmel, IN 46032 U.S.A.
Tel: 317-580-8282
Toll free: 1-800-419-7779
Fax: 317-580-8290
Monday - Friday, 8am to 5pm E.S.T.
www.sepro.com

Emergency telephone number (with hours of operation) : **INFOTRAC - 24-hour service 1-800-535-5053**

The following recommendations for exposure controls and personal protection are intended for the manufacture, formulation and packaging of this product. For applications and/or use, consult the product label. The label directions supersede the text of this Safety Data Sheet for application and/or use.

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : ACUTE TOXICITY (oral) - Category 4
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A

GHS label elements

Hazard pictograms : Exclamation mark
Signal word : Warning
Hazard statements : Harmful if swallowed.
Causes serious eye irritation.
Causes skin irritation.

Precautionary statements

Prevention : Wear protective gloves. Wear eye or face protection. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.



Section 2. Hazards identification

Response	: IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
Storage	: Not applicable.
Disposal	: Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazards not otherwise classified	: None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Mixture
Other means of identification	: Not available.

CAS number/other identifiers

CAS number	: Not applicable.
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Ingredient name	%	CAS number
Copper Triethanolamine Complex	14.9	82027-59-6
Copper Monoethanolamine Complex	13.3	14215-52-2
Proprietary ingredient 1	10 - 30	-
Proprietary ingredient 2	10 - 30	-
Proprietary ingredient 3	10 - 30	-
Proprietary ingredient 4	30 - 60	-

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention.
Inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin contact	: Flush contaminated skin with plenty of water. Continue to rinse for at least 20 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Section 4. First aid measures

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : Causes skin irritation.

Ingestion : Harmful if swallowed. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No known significant effects or critical hazards.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No known significant effects or critical hazards.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Section 5. Fire-fighting measures

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
 carbon dioxide
 carbon monoxide
 nitrogen oxides
 metal oxide/oxides
- Special protective actions for fire-fighters** : No special measures are required.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillages with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Proprietary ingredient 1	ACGIH TLV (United States, 3/2012). TWA: 5 mg/m ³ 8 hours.
Proprietary ingredient 2	ACGIH TLV (United States, 2/2010). STEL: 15 mg/m ³ 15 minutes. STEL: 6 ppm 15 minutes. TWA: 7.5 mg/m ³ 8 hours. TWA: 3 ppm 8 hours. NIOSH REL (United States, 6/2009). STEL: 15 mg/m ³ 15 minutes. STEL: 6 ppm 15 minutes. TWA: 8 mg/m ³ 10 hours. TWA: 3 ppm 10 hours. OSHA PEL (United States, 6/2010). TWA: 6 mg/m ³ 8 hours. TWA: 3 ppm 8 hours.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or supplied air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Blue. [Dark]
- Odor** : Ammoniacal. [Slight]
- Odor threshold** : Not available.
- pH** : 10 to 10.5
- Melting point** : Not available.
- Boiling point** : 100°C (212°F)
- Flash point** : Open cup: >93.3°C (>199.9°F)
- Burning time** : Not applicable.
- Burning rate** : Not applicable.
- Evaporation rate** : <1 (Butyl acetate = 1)
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : 2.3 kPa (17 mm Hg) [room temperature]
- Vapor density** : 3.5 [Air = 1]
- Relative density** : 1.2
- Solubility** : Miscible in water.
- Solubility in water** : Not available.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : 198.89°C (390°F)
- SADT** : Not available.
- Viscosity** : Not available.

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : No specific data.

Section 10. Stability and reactivity

Incompatible materials : Reactive or incompatible with the following materials: oxidizing materials, acids and alkalis. Strong acids and nitrites.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Captain® XTR Algaecide	LD50 Dermal LD50 Oral	Rabbit Rat	>2000 mg/kg 590 mg/kg	- -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Captain® XTR Algaecide	Eyes - Severe irritant Skin - Severe irritant	Rabbit Rabbit	- -	0.1 ml 0.5 ml	- -

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Captain® XTR Algaecide	skin	Guinea pig	Not sensitizing

Mutagenicity

There is no data available.

Carcinogenicity

There is no data available.

Reproductive toxicity

There is no data available.

Teratogenicity

There is no data available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Proprietary ingredient 2	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

There is no data available.

Aspiration hazard

There is no data available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation, Eye.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Section 11. Toxicological information

- Skin contact** : Causes skin irritation.
Ingestion : Harmful if swallowed. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
 pain or irritation
 watering
 redness
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Adverse symptoms may include the following:
 irritation
 redness
- Ingestion** : No known significant effects or critical hazards.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : No known significant effects or critical hazards.
Potential delayed effects : No known significant effects or critical hazards.

Long term exposure

- Potential immediate effects** : No known significant effects or critical hazards.
Potential delayed effects : No known significant effects or critical hazards.

Potential chronic health effects

- General** : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

There is no data available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Proprietary ingredient 1	Acute EC50 609.98 mg/L Fresh water	Crustaceans - <i>Ceriodaphnia dubia</i> - Neonate	48 hours
Proprietary ingredient 2	Acute LC50 11800 mg/L Fresh water	Fish - <i>Pimephales promelas</i>	96 hours
	Chronic NOEC 16 mg/L Fresh water	Daphnia - <i>Daphnia magna</i>	21 days
	Acute EC50 80 mg/L Fresh water	Algae - <i>Isochrysis galbana</i>	96 hours
Proprietary ingredient 3	Acute LC50 >100 mg/L Marine water	Crustaceans - <i>Crangon crangon</i> - Adult	48 hours
	Acute LC50 170 mg/L Fresh water	Fish - <i>Carassius auratus</i>	96 hours
Proprietary ingredient 3	Acute EC50 4.53 mg/L Fresh water	Crustaceans - <i>Ceriodaphnia dubia</i> - Neonate	48 hours

Section 12. Ecological information

Persistence and degradability

There is no data available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Proprietary ingredient 2	-1.31	-	low

Mobility in soil





Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	UN1760	UN1760	UN1760
UN proper shipping name	CORROSIVE LIQUID, N.O.S.(Alkanolamines)	CORROSIVE LIQUID, N.O.S. (Alkanolamines). Marine pollutant (Copper Monoethanolamine Complex, Copper Triethanolamine Complex)	CORROSIVE LIQUID, N.O.S.(Alkanolamines)
Transport hazard class(es)	8 	8  	8 
Packing group	III	III	III
Environmental hazards	No.	Yes.	No.
Additional information	- FOR PACKAGES SIZES GREATER THAN ONE GALLON	-FOR PACKAGES SIZES GREATER THAN ONE GALLON	-FOR PACKAGES SIZES GREATER THAN ONE GALLON

Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
Commerce control list precursor: Proprietary ingredient 1
United States inventory (TSCA 8b): Not determined.
Clean Water Act (CWA) 307: Copper Monoethanolamine Complex; Copper Triethanolamine Complex

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Immediate (acute) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Proprietary ingredient 2	10 - 30	No.	No.	No.	Yes.	No.
Proprietary ingredient 3	10 - 30	No.	No.	No.	Yes.	No.

Section 15. Regulatory information

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	Copper Monoethanolamine Complex	14215-52-2	13.3
	Copper Triethanolamine Complex	82027-59-6	14.9
Supplier notification	Copper Monoethanolamine Complex	14215-52-2	13.3
	Copper Triethanolamine Complex	82027-59-6	14.9

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

- Massachusetts** : The following components are listed: Proprietary ingredient 1; Proprietary ingredient 2
- New York** : None of the components are listed.
- New Jersey** : The following components are listed: Proprietary ingredient 1; Proprietary ingredient 2; Copper Monoethanolamine Complex; Copper Triethanolamine Complex
- Pennsylvania** : The following components are listed: Proprietary ingredient 1; Proprietary ingredient 2; Copper Monoethanolamine Complex; Copper Triethanolamine Complex

California Prop. 65

No products were found.

International regulations

- International lists** :
- Australia inventory (AICS)**: Not determined.
 - China inventory (IECSC)**: Not determined.
 - Japan inventory**: Not determined.
 - Korea inventory**: Not determined.
 - Malaysia Inventory (EHS Register)**: Not determined.
 - New Zealand Inventory of Chemicals (NZIoC)**: Not determined.
 - Philippines inventory (PICCS)**: Not determined.
 - Taiwan inventory (CSNN)**: Not determined.
- Chemical Weapons Convention List Schedule I Chemicals** : Not listed
- Chemical Weapons Convention List Schedule II Chemicals** : Not listed
- Chemical Weapons Convention List Schedule III Chemicals** : Listed

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health : 3 * Flammability : 1 Physical hazards : 0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Health : 3 Flammability : 1 Instability : 0

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Section 16. Other information

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of issue mm/dd/yyyy : 08/28/2018
Date of previous issue : 06/08/2016
Version : 2
Revised Section(s) : 14
Prepared by : SePRO Corp.

Key to abbreviations

: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

46923-4

05/07/2013

1/18



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF
CHEMICAL SAFETY AND
POLLUTION PREVENTION

Crystal Layton
Agent for Old Bridge Chemicals, Inc.
Landis International, Inc.
P.O. Box 5126
Valdosta, GA 31603-5126

MAY 7 2013

Subject: Copper Sulfate Fine Crystals
EPA Reg. No. 46923-4
Amendment dated 2/22/2013 to add algal control in swimming pools
EPA Decision No. 476023

Dear Ms. Layton,

The amendment referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act as amended, to add control of algae and bacterial odors in swimming pools, add an additional package size of 2,000 pounds, and update the company address, is acceptable. A copy of the approved label, stamped "Accepted" is enclosed.

If you have any questions, please contact Kaitlin Keller by phone at (703)-308-8172 or via email at keller.kaitlin@epa.gov.

Sincerely,

A handwritten signature in black ink that reads "Tony Kish".

Tony Kish
Product Manager 22
Fungicide Branch
Registration Division (7504P)

Enclosure: Label stamped "Accepted"

COMMERCIAL LABEL

Old Bridge Chemicals, Inc.

COPPER SULFATE FINE CRYSTALS

Net Weight: 50, 2000 pounds (22.68, 453.59 Kg) EPA Reg. No. 46923-4
EPA Est. No. 46923-NJ-1

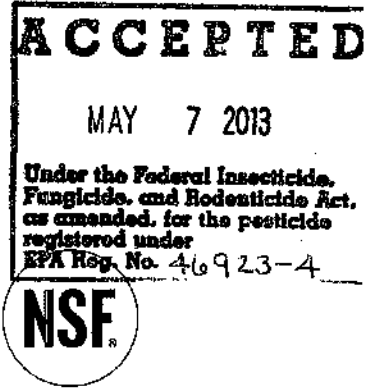
ACTIVE INGREDIENT

Copper Sulfate Pentahydrate*: CAS # 7758-99-899.0%

OTHER INGREDIENTS.....1.0%

TOTAL.....100%

*Metallic Copper Equivalent: 25.2%



Certified to ANSI/NSF 60

KEEP OUT OF REACH OF CHILDREN DANGER/PELIGRO

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

ATTENTION: This product contains chemicals known to the State of California to cause cancer and birth defects.

FIRST AID	
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.
If swallowed	<ul style="list-style-type: none"> • Call poison control center or doctor immediately for treatment advice. • Have a person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call poison control center or doctor for further treatment advice.
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 the poison control center or doctor for treatment advice.
HOT LINE SERVICE	
Have the product container or label with you when calling a poison control center or doctor, or for going for treatment. You may contact 800-275-3924 for emergency medical information.	
NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.	

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive. Causes irreversible eye damage. May be fatal if swallowed. Do not get in eyes or on clothing. For applications in waters destined for use as drinking water, those waters must receive additional and separate potable water treatment. Do not apply more than 1.0 ppm as metallic copper to these waters.

PERSONAL PROTECTIVE EQUIPMENT

Mixers, Loaders, Applicators and other handlers must wear the following: Long sleeve shirt, long pants, shoes plus socks, protective eyewear such as glasses with side shields, chemical resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride, disposable particulate dust mask NIOSH approved N95. Some materials that are chemical resistant to this product are rubber and latex. If you want more options, follow the instructions for category A on an EPA chemical resistant category selection chart. Follow manufacturer's instructions for cleaning or 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 materials that have been drenched or heavily contaminated with product's concentrate. Do not reuse them.

USER SAFETY RECOMMENDATIONS

- Users should wash hands before eating, drinking, chewing gum, using tobacco, or using toilet.
- Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Users should remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing. Wash outside of gloves before removing.

ENVIRONMENTAL HAZARDS

AQUATIC USES: This pesticide is toxic to fish and aquatic invertebrates. Water treated with this product may be hazardous to aquatic organisms. Treatment of aquatic weeds and algae can result in oxygen loss from decomposition of dead algae and weeds. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, do not treat more than 1/2 of the water body to avoid depletion of oxygen due to decaying vegetation. Wait at least 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Consult with the State or local agency with primary responsibility for regulating pesticides before applying to public waters to determine if a permit is required.

Certain water conditions including low pH (<6.5), low dissolved organic carbon (DOC) levels (3.0 mg/or lower), and soft waters (i.e. alkalinity less than 50 mg/L), increase the potential acute toxicity to non-target aquatic organisms.

Restrictions: For algae use except for treatment of rice to control algae: No more than 1/2 of the water body may be treated at one time. If the treated water is to be used as a source of potable water, the metallic copper concentration must not exceed 1 ppm. For all algae use (including use of rice to control algae), the minimum retreatment interval is 14 days.

TERRESTRIAL USES: This pesticide is toxic to fish and aquatic invertebrates and may contaminate water through runoff. This product has a potential for runoff for several months or more after application. Poorly

drained soils and soils with shallow water tables are more prone to product runoff that contains this product. Drift and runoff may be hazardous to aquatic organisms adjacent to treated areas. Do not apply directly to water, or to area where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water or rinsate.

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 requirements specific for your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, (40 CFR Part 170). This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouse and 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 this label about personal protection equipment (PPE), and restricted-entry period. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard. Do not enter or allow worker entry into treated areas during restricted entry interval for 48 hours. PPE required for early entry to treated areas that is permitted by the Worker Protection Standard that involves contact with anything that has been treated, such as plants, soil or water is: Coveralls, shoes plus socks, chemical resistant gloves made waterproof material such as polyethylene or polyvinyl chloride and goggles or face shield.

NON AGRICULTURAL USE REQUIREMENTS

The requirement 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 the product is used to produce agricultural plants on farms, forest, nurseries or green-houses. Applicators and other handlers who handle this product for any use NOT covered by the Worker Protection Standard (CFR 40 Part 170) must wear long sleeve shirt, chemical resistant gloves made of water-proof material such as rubber or latex, shoes plus socks and protective eyewear, wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Do not allow adults, children or pets to enter treated areas until sprays have completely dried or if applied dry until dust settles.

SPRAY DRIFT MANAGEMENT

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

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

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

Droplet Size: Apply only as a medium or coarse spray (ASAE Standard 572) or a mean diameter of 300 microns or greater for spinning atomizer nozzles.

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

Aerial Application: The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter. Release crystals at the lowest height consistent with efficacy and flight safety. Do not release at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety. When applications are made with a crosswind, the swath must be displaced downwind. The applicator must compensate for this displacement at the up and downwind edge of the application area by adjusting the path of the aircraft.

STORAGE AND DISPOSAL

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

Pesticide Storage: Store in a cool and dry place. If paper bag, super sack, or jug is damaged place in a plastic bag. Shovel any spills into a plastic bag and seal with tape. Keep pesticide in original container. Do not put concentrate or dilutions of concentrate in food or drink containers.

Pesticide Disposal: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State or Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional office for guidance.

Container Disposal: Non-refillable container: Do not reuse or refill this container.

Super Sack and Paper Bags: Completely empty the bags by shaking and tapping sides and bottom to loosen clinging particles. Empty residues into application equipment. Then dispose of empty sack/bag in a sanitary landfill or by incineration if allowed by the State and Local Authorities. If burning, stay out of smoke. Offer for recycling if available. Plastic Jugs: Triple rinse as follows: Empty remaining contents into application equipment or mix tank. Fill the container ¼ full with water and recap. Shake for ten seconds. Pour rinsate into application equipment or a mix tank or store for future use or disposal. Drain for 10 seconds after flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, if available, or puncture and dispose of in a sanitary landfill, or, if allowed by State and Local authorities, by burning. If burning, stay out of smoke.

DIRECTIONS FOR USE

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

ALGAE CONTROL

When using Copper Sulfate to control algae, there are many factors to consider such as water hardness, temperature of the water, type and quantity of vegetation to be controlled and the amount of water flow. Algae

can be controlled more easily and effectively if treatment with Copper Sulfate is made soon after plant growth has started. Under such circumstances, small amounts of Copper Sulfate can effectively control algae in water. However, if treatment is delayed until large amounts of algae are present larger quantities of Copper Sulfate will be required. Control of algae in water systems is not always permanent. Usually algae is more difficult to control with Copper Sulfate when water temperatures are low. The dose rates for Copper Sulfate are based on a water of 60 ° F or higher. Larger amounts of Copper Sulfate will be required in hard water. Normally, larger quantities of Copper Sulfate will be required to kill algae in water that is flowing than in a body of stagnant water. If possible, curtail the flow of water before treatment and hold dormant for about three days after treatment or until plants have begun to die. When preparing a Copper Sulfate solution in water, it is best that the mixing vessel be made of plastic or glass. Metal containers lined with plastic or painted or enameled are permissible. Galvanized containers are to be avoided. It is best to treat algae on calm, sunny days when heavy mats of filamentary algae are most likely to be floating on the surface where it can be sprayed directly. When in doubt about the concentration to be used, it is recommended to start with a lower concentration and gradually increase the concentration until the algae is killed.

CALCULATIONS FOR AMOUNT OF WATER AND COPPER SULFATE PENTAHYDRATE TO BE USED.

- A. Calculate water volume as follows:
 1. Obtain surface area by measuring regular shaped ponds or mapping irregular ponds or by use of a previously recorded data or maps.
 2. Calculate average depth by sounding in a regular pattern and taking the mean of these readings or by use of previously recorded data.
 3. Multiply surface area by square feet by average depth in feet to obtain cubic feet of water volume, or
 4. Multiply surface area in acres by average depth in feet to obtain total acre feet of water volume.

- B. Calculate weight of water to be treated as follows:
 1. Multiply volume in cubic feet by 62.44 to obtain total pounds of water, or
 2. Multiply volume in acre feet by 2,720,000 to obtain total pounds of water.

C. Calculate amount of Copper Sulfate Pentahydrate to add:
 To calculate the weight of Copper Sulfate Pentahydrate needed to achieve the desired concentration, multiply the weight of water in pounds by the recommended concentration, Since the recommended concentrations are given in parts per million (ppm), first convert the value to a decimal equivalent. A value of 1 ppm is equivalent 0.000001 as a decimal value. Thus the amount of Copper Sulfate Pentahydrate required to treat 1 acre-foot (2,720,000 pounds) of water with 1 ppm of Copper Sulfate Pentahydrate would be $0.000001 \times 2,720,000 = 2.72$ lbs. Copper Sulfate Pentahydrate.

FOR SMALL PONDS: Follow the directions in "A" above. Calculate the weight of the water to be treated by multiplying the volume in cubic feet by 62.44 to obtain total pounds of water. For 1 ppm of Copper Sulfate multiply the pounds by .000001. The result is pounds of Copper Sulfate. The amount of Copper Sulfate to treat a pond 100 ft. by 100 ft. by 2 ft. deep: $100 \times 100 \times 2 = 20,000 \text{ ft}^3$
 $20,000 \text{ cu ft.} \times 62.44 \text{ lbs} = 1,248,800 \text{ lbs of water} \times .0001 = 1.25 \text{ pounds of Copper Sulfate.}$

Treatment of algae can result in oxygen loss for decomposition of dead algae. This loss can cause fish suffocation. Therefore to minimize this hazard, treat 1/3 to 1/2 of the water area in a single operation and wait 14 days between treatments. Begin treatments along the shore and proceed outwards in bands to allow fish to

move into untreated water.
NOTE: If treated water is to be used as a source of potable water, the metallic copper residual must not exceed 1 ppm (4 ppm Copper Sulfate Pentahydrate).

SPECIFIC INSTRUCTIONS

CONTROL ALGAE AND THE POTAMOGETON PONDWEEDS, LEAFY SAGO, IN IRRIGATION CONVEYANCE SYSTEMS: Use the continuous application method, selecting proper equipment to supply Copper Sulfate Crystal at 0.25 to 0.5 pounds per hour for each cubic foot per second of flow for twelve hours of each 24 hours. For the best control, begin Copper Sulfate additions when water is first turned into system to be treated and continue throughout the irrigation season. Copper Sulfate Crystal becomes less effective for mature plants. Copper Sulfate Crystal becomes less effective as the bicarbonate alkalinity increases and is substantially reduced above 150 ppm as CaCO3. Mechanical or other means may then be required to remove excess growth.

TO CONTROL ALGAE SUCH AS FILAMENTOUS GREEN PIGMENTED FLAGELLATES AND DIATOMS IN IRRIGATION CONVEYANCE SYSTEMS: Begin continuous addition when water is first turned on using suitable equipment to uniformly deliver 0.1 to 0.2 pounds of Copper Sulfate Crystal per hour per cubic foot per second of flow for 12 of each 24 hours. (note: Copper Sulfate Crystal comes in several "free flowing" crystal sizes but should be selected to match requirements of your feeder.)

TO CONTROL ALGAE IN RICE FIELDS: (Domestic and Wild): Application should be made when algae has formed on the soil surface in the flooded field. Applications are most effective when made prior to algae leaving the soil surface and rising to the surface of the water. For a 3-inch flood depth, apply Copper Sulfate at a rate of 2.72 lbs. per acre at the first sign of algae. Apply Copper Sulfate crystals to the surface of the water or dissolve in water and make a surface spray. For a 6-inch flooded depth, use 5.44 lbs. per acre. Adjust the rate according to the average water depth, not to exceed the maximum application rate of 4 ppm of Copper Sulfate (1 ppm metallic copper), which is equivalent to 10.88 lbs. of Copper Sulfate per acre-foot of water. The minimum retreatment interval is 14 days.

TO CONTROL TADPOLE SHRIMP IN RICE FIELDS: Application should be made to the flooded rice fields anytime the pest appears from planting time until the seedlings are well rooted and have emerged through the water. For a 3-inch flood depth, apply 6.75 pounds per acre. For a flood depth of 6 inches, use 13.6 lbs. per acre. Adjust the rate according to the average water depth, not to exceed the maximum application rate of 10 ppm of Copper Sulfate (2.5 ppm metallic copper), which is equivalent to 27.2 pounds of Copper Sulfate per acre of water.

TO CONTROL ALGAE IN IMPOUNDED WATER, LAKES, PONDS AND RESERVOIRS:
There are several methods by which to apply Copper Sulfate to impounded water. Probably the simplest and the most satisfactory method is to dissolve the Copper Sulfate crystals in water and spray the solution over the body of water. A small pump mounted in the boat can easily be used for this purpose. Copper Sulfate may be broadcast directly on the water surface from a properly equipped boat. A specially equipped air blower can be used to discharge these size crystals at a specific rate over the surface of the water. When using this method, the wind direction is an important factor. Do not use this method unless completely familiar with this type of application. Copper Sulfate is also designed to be used as a dry application from airplanes, using a maximum of 10.64 pounds per acre-foot. Where the situation permits, Copper Sulfate may be applied under the water by dragging burlap bags filled with Copper Sulfate through the water by means of a boat. Begin

treatment along the shoreline and proceed outward until $\frac{1}{3}$ to $\frac{1}{2}$ of the total area has been treated. No more than $\frac{1}{2}$ of the water body may be treated at one time. Care should be taken that the course of the boat is such as to cause even distribution of the chemical. In large lakes, it is customary for the boat to travel in parallel lines about 20 to 100 feet apart. Continue dragging the burlap bags over the treated area until the minimum dosage is achieved and all the crystals have been dissolved. The minimum treatment interval is 14 days. If the treated water is to be used as a source of potable water, the metallic copper concentration must not exceed 1 ppm (4 ppm Copper Sulfate).

COPPER SULFATE REQUIRED FOR TREATMENT OF DIFFERENT GENERA OF ALGAE:

The genera of algae listed below are commonly found in impounded water, lakes, ponds, and reservoirs in the United States. Use the lower recommended rate of Copper Sulfate in soft waters (less than 50 ppm methyl orange alkalinity) and higher concentration in hard water (above 50 ppm alkalinity).

NOTE: Do not use concentration of $1\frac{1}{2}$ ppm or more where fish are present. Concentrations up to 6 ppm are permitted in waters such as rice fields where fish are not present. Always consult State Fish and Game Agency before applying this product to municipal waters.

CONCENTRATION:	$\frac{1}{4}$ to $\frac{1}{2}$ ppm	$\frac{1}{2}$ to 1 ppm	1 to $1\frac{1}{2}$ ppm	$1\frac{1}{2}$ to 2 ppm
POUNDS/ACRE FOOT:	.67 to 1.3	1.3 to 2.6	2.6 to 3.9	3.9 to 5.3
ORGANISM				
Cyanophyceae (Blue Green)	Anabaena Anacystis Aphanizomenon Gloeotrichia Gomphosphaeria Polycystis Rivularia	Cylindrospermum Oscillatoris Pleustonema	Nostoc Phormidium	Calothrix Symploca
Chlorophyceae (Green)	Closterium Hydrodictyon Spirogyra Ulothrix	Botryococcus Cladophora Coelastrum Drapamaldia Enteromorpha Gloeocystis Microspora Tribonema Zygnema	Chlorella Crucigenia Desmidium Golenkinia Oocystis Palmelia Pithiphora Staurastrum Tetraedron	Ankistrodesmus Chara Nitella Scenedemus
Diatomaceae (Diatoms)	Asterionella Fragilaria Melorisa Navicula	Gomphonema Nitzschia Stephanodiscus Synedra Tabellaria	Achnanthes Cymbella Neidum	
Protozoa (Flageliates)	Dinobryon Synura Uroglena	Ceratium Cryptomonas Euglena	Chlamydomonas Hawmatococcus Peridinium	Eudorina Pandorina

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Volvox

Glenodinium
Mallomonase

CONTROL OF ALGAE AND BACTERIAL ODORS IN SWIMMING POOLS

To treat and prevent algae and odors, apply 1 tablespoon of Copper Sulfate Fine Crystals for every thousand gallons of pool water. This will result in a concentration of 1.0 ppm of dissolved copper. Prior to application, the pH of the pool should be 7.2-7.6. Dissolve the Copper Sulfate Fine Crystals in water in a plastic container and pour the solution into the pool around the edge of the pool. Never add Copper Sulfate Fine Crystals while swimming. As soon as the solution disperses in the pool water, you may reenter the pool.

Using a copper test kit (this may be purchased at any pool supply store) check copper levels every 2 weeks. As needed, apply a maintenance dosage to maintain a 0.7 to 1.0 ppm concentration. Prior to application, the pH of the pool should be 7.2-7.6. Dissolve the required amount of Copper Sulfate Fine Crystals in a plastic container and pour the solution into the pool around the edge of the pool.

Most pool shock products may be used with this product. During heavy usage shock pool once a week and use a filter clarifier. Copper Sulfate Fine Crystals is a very simple and easy way to maintain your pool water looking crystal clear year round with very little maintenance. When used as directed Copper Sulfate Fine Crystals may be used for all pools (consult your pool professional on plaster or finished concrete pools before adding).

[Optional Claims:] This Pool Maintenance formula: Is simple to use; Has no chlorine smells; May be used with any type of filter system; Controls algae and bacterial odors; Has very little effect on pH; Unlike other products Copper Sulfate Fine Crystals will not evaporate out of your water; Compatible with most pool chemicals.

SEWER TREATMENT-ROOT DESTROYER ROOT CONTROL GENERAL INFORMATION

Plant roots can penetrate through small cracks and poorly sealed joints of sewer lines. If not controlled, these small roots will continue to grow larger in number causing breakage, reduced flow and eventually flow stoppage. This product has been known to be an effective means to control roots in residential and commercial sewers.

COMMERCIAL, INSTITUTIONAL AND MUNICIPAL SEWERS ROOT CONTROL IN SEWERS.

As a preventative measure, apply into each junction or terminal manhole a maximum of two pounds of this product every 6 to 12 months. At time of reduced flow (some water is essential) add this product. If flow has not completely stopped, but has a reduced flow due to root masses, add this product in the next manhole above the reduced flow area. For complete stoppage, penetrate the mass with a rod to enable some flow before treatment.

ROOT CONTROL IN STORM DRAINS:

Apply when water flow is light. If no water flow, as in dry weather, use a hose to produce a flow. Apply 2 pounds of this product per drain per year.

SEWER PUMPS AND FORCE MAINS:

At the storage well inlet, place a cloth bag containing 2 lbs of this product. Repeat every six months if necessary.

RESIDENTIAL OR HOUSEHOLD SEWER SYSTEMS:

When a reduced water flow is first noticed, and root growth is thought to be the cause, treat with this product.

It is important not to wait until a stoppage occurs because some water flow is necessary to move this product to the area of root growth. Usually, within 3 to 4 weeks, after roots have accumulated sufficient Copper Sulfate Pentahydrate, the roots will die and begin to decay and water flow should increase. As the roots re-grow, follow-up treatments with this product may be required every 6 months. Applications may be made each year in the spring after plant growth begins, during late summer or early fall, or anytime a reduced water flow, thought to be caused by root growth, occurs. Apply one pound of this product every six months to household sewers. Add this product to sewer lines by pouring about 1/2 pound increments into the toilet bowl nearest the sewer line and flush. Repeat this process until recommended dose has been added. Or remove cleanout plug and pour entire recommended quantity directly into the sewer line. Replace the plug and flush toilet several times. Do not apply Copper Sulfate through sink or tub as it will corrode metal drains. If system is equipped with septic tank, Copper Sulfate will precipitate in the septic tank and little will pass into the absorption drain field. To treat drain field pipes, add 2 pounds of Copper Sulfate once a year to the distribution box located between the septic tank and the drain field. If the distribution box does not have an opening, it would be advisable to install a clean out plug opening into the outlet pipe from the septic tank leading to the drain field for effective root control in the drain field pipes.

***NOTE:** Do not use a sewer additive where prohibited by State Law. State Law prohibits the use of this product in sewer systems in the State of Connecticut. Not for sale or use in California counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma for root control in sewers. Not for sale or use in septic systems in the State of Florida.

WOOD TREATMENT

(Green, peeled posts)- fungus decay rot Prepare a solution of 18.0 pounds of sodium chromate in each 26 gallons of water to be used and a separate second solution of 18.0 pounds of Copper Sulfate in each 24 gallons of water to be used; soak the peeled, green posts, butt end down first in the Copper Sulfate solution for 3 days, then butt end down in Sodium Chromate solution for 2 days, and finally; turn the posts upside down in Sodium Chromate solution for 1 additional day. Remove and rinse posts with clear water.

CONDITION OF SALE

LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES

Read and follow all package directions carefully. Purchaser and user assume all risks associated with improper use, or application or other factors beyond Old Bridge's control. Old Bridge warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use subject to the risks referred above. **OLD BRIDGE MAKES NO AND THE LAW SHALL NOT FIND ANY EXPRESSED OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.** To the extent consistent with applicable law, purchaser's use and sole remedy against Old Bridge for any cause of action related to the handling or use of this product shall be for damages, for the amount of which shall not exceed the price paid for the product that causes the alleged loss, damages, injury, or other claim to the extent consistent with applicable law. In no event shall Old Bridge be liable for special, indirect, incidental or consequential damages or expenses. By purchasing or using this product, purchaser or user accept the foregoing conditions of sale and limitation of warranty, liability, and remedies.

**ENVIROMENTALLY HAZARDOUS
SUBSTANCE
SOLID, N.O.S. (CUPRIC SULFATE),
9,UN3077, PGIII, RQ
CASE NO. 7758-99-8**

11/18

For Technical Information and MSDS
Call Old Bridge Chemicals
at (732) 727-2225
or e-mail: Sales@OldBridgeChem.com
OLD BRIDGE CHEMICALS, INC
554 Waterworks Road
Old Bridge, New Jersey 08857

NON-COMMERCIAL LABEL FOR HOUSEHOLD USE

Old Bridge Chemicals, Inc.

COPPER SULFATE FINE CRYSTALS

Net Weight: 2 pounds (0.908 Kg) EPA Reg. No. 46923-4

EPA Est. No. 46923-NJ-1

ACTIVE INGREDIENT

Copper Sulfate Pentahydrate*: CAS # 7758-99-899.0%

OTHER INGREDIENTS.....1.0%

TOTAL.....100%



*Metallic Copper Equivalent: 25.2%

Certified to ANSI/NSF 60

KEEP OUT OF REACH OF CHILDREN

DANGER/PELIGRO

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

ATTENTION: This product contains chemicals known to the State of California to cause cancer and birth defects.

FIRST AID

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.
If swallowed	<ul style="list-style-type: none"> • Call a poison control center or doctor for treatment advice. • Have a person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call poison control center or doctor for further treatment advice.
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 poison control center or doctor for further treatment advice.

HOT LINE SERVICE

Have the product container or label with you when calling a poison control center or doctor, or for going for treatment. You may contact 800-275-3924 for emergency medical information.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive. Causes irreversible eye damage. May be fatal if swallowed. Do not get in eyes or on clothing. For applications in waters destined for use as drinking water, those waters must receive additional and separate potable water treatment. Do not apply more than 1.0 ppm as metallic copper to these waters.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear the following: Long sleeve shirt, long pants, shoes plus socks, protective eyewear such as goggles, face shield or safety glasses, chemical resistant gloves made of any waterproof material. Some materials that are chemical resistant to this product are polyvinyl chloride, nitrile rubber or butyl rubber. If you want more options, follow the instructions for category A on an EPA chemical resistant category selection chart. Follow manufacturer's instructions for cleaning or 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 materials that have been drenched or heavily contaminated with product's concentrate. Do not reuse them.

USER SAFETY RECOMMENDATIONS

- Users should wash hands before eating, drinking, chewing gum, using tobacco, or using toilet.
- Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Users should remove PPE immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

AQUATIC USES: This product is toxic to fish and aquatic invertebrates. Water treated with this product and may be hazardous to aquatic organisms. Treatment of aquatic weeds and algae can result in oxygen loss from decomposition of dead algae and weeds. The oxygen loss can cause fish and invertebrate suffocations. To minimize this hazard, do not treat more than 1/2 of the water body to avoid depletion of oxygen due to decaying vegetation. Wait at least 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Consult with State or local agency with primary responsibility for regulating pesticides before applying to public waters to determine if a permit is required.

Certain water conditions including low pH (<6.5), low dissolved organic carbon (DOC levels (3.0 mg or lower), and soft waters (i.e. Alkalinity less than 50 mg/L), increase the potential acute toxicity to non-target aquatic organisms.

TERRESTRIAL USES: This pesticide is toxic to fish and aquatic invertebrates and may contaminate water through runoff. This product has a potential for runoff for several months or more after application. Poorly drained soils and soils with shallow water tables are more prone to product runoff that contains this product. Drift and runoff may be hazardous to aquatic organisms adjacent to treated areas. Do not apply directly to water, or to area where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing or equipment wash water or rinsate.

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 adults, children, or pets, either directly or through drift. Do not allow adults, children, or pets to enter the treated area until dusts have settled.

STORAGE AND DISPOSAL

Do not contaminate food or feed by storage or disposal.

PESTICIDE STORAGE: Store in original container and place in a locked storage area.

PESTICIDE DISPOSAL: Call your local solid waste agency for disposal instructions. Unless otherwise instructed, place in trash. Never pour unused product down the drain or on the ground.

CONTAINER DISPOSAL: *If empty* - Non-refillable container. Do not reuse or refill this container.

Do not rinse unless required for recycling. Place in trash or offer for recycling if available.

If partially filled - Call your local solid waste agency for disposal instructions. Unless otherwise instructed, place in trash. Never pour unused product down a drain or on the ground.

GENERAL INSTRUCTIONS FOR USE IN ALGAE CONTROL

When using Copper Sulfate to control algae, there are many factors to consider such as water hardness, temperature of the water, type and quantity of vegetation to be controlled and the amount of water flow. Algae can be controlled more easily and effectively if treatment with Copper Sulfate is made soon after plant growth has started. Under such circumstances, small amounts of Copper Sulfate can effectively control algae in water. However, if treatment is delayed until large amounts of algae are present larger quantities of Copper Sulfate will be required. Control of algae in water systems is not always permanent. Usually algae is more difficult to control with Copper Sulfate when water temperatures are low. The dose rates for Copper Sulfate are based on a water of 60 ° F or higher. Larger amounts of Copper Sulfate will be required in hard water. Normally, larger quantities of Copper Sulfate will be required to kill algae in water that is flowing than in a body of stagnant water. If possible, curtail the flow of water before treatment and hold dormant for about three days after treatment or until plants have begun to die. When preparing a Copper Sulfate solution in water, it is best that the mixing vessel be made of plastic or glass. Metal containers lined with plastic or painted or enameled are permissible. Galvanized containers are to be avoided. It is best to treat algae on calm, sunny days when heavy mats of filamentary algae are most likely to be floating on the surface where it can be sprayed directly. When in doubt about the concentration to be used, it is recommended to start with a lower concentration and gradually increase the concentration until the algae is killed.

CALCULATIONS FOR AMOUNT OF WATER AND COPPER SULFATE PENTAHYDRATE TO BE USED

- A. Calculate water volume as follows:
 1. Obtain surface area by measuring regular shaped ponds or mapping irregular ponds or by use of a previously recorded data or maps.
 2. Calculate average depth by sounding in a regular pattern and taking the mean of these readings or by use of previously recorded data.
 3. Multiply surface area by square feet by average depth in feet to obtain cubic feet of water volume, or

4. Multiply surface area in acres by average depth in feet to obtain total acre feet of water volume.
- B. Calculate weight of water to be treated as follows:
 1. Multiply volume in cubic feet by 62.44 to obtain total pounds of water, or
 2. Multiply volume in acre feet by 2,720,000 to obtain total pounds of water.
- C. Calculate amount of Copper Sulfate Pentahydrate to add:
 To calculate the weight of Copper Sulfate Pentahydrate needed to achieve the desired concentration, multiply the weight of water in pounds by the recommended concentration. Since the recommended concentrations are given in parts per million (ppm), first convert the value to a decimal equivalent. A value of 1 ppm is equivalent 0.000001 as a decimal value. Thus the amount of Copper Sulfate Pentahydrate required to treat 1 acre-foot (2,720,000 pounds) of water with 1 ppm of Copper Sulfate Pentahydrate would be $0.000001 \times 2,720,000 = 2.72$ lbs. Copper Sulfate.

Treatment of algae can result in oxygen loss for decomposition of dead algae. This loss can cause fish suffocation. Therefore to minimize this hazard, treat $\frac{1}{3}$ to $\frac{1}{2}$ of the water area in a single operation and wait 14 days between treatments. Begin treatments along the shore and proceed outwards in bands to allow fish to move into untreated water. NOTE: If treated water is to be used as a source of potable water, the metallic copper residual must not exceed 1 ppm (4 ppm Copper Sulfate Pentahydrate).

SPECIFIC INSTRUCTIONS

TO CONTROL ALGAE IN IMPOUNDED WATER, LAKES AND PONDS: There are several methods by which to apply Copper Sulfate to impounded water. Probably the simplest and the most satisfactory method is to dissolve the Copper Sulfate crystals in water and spray the solution over the body of water. A small pump mounted in the boat can easily be used for this purpose. Copper Sulfate may be broadcast directly on the water surface from a boat. Where the situation permits, Copper Sulfate may be applied under the water by dragging burlap bags filled with Copper Sulfate through the water by means of a boat. Begin treatment along the shoreline and proceed outward until $\frac{1}{3}$ to $\frac{1}{2}$ of the total area has been treated. Care should be taken that the course of the boat is such as to cause even distribution of the chemical. In large lakes, it is customary for the boat to travel in parallel lines about 20 to 100 feet apart. Continue dragging the burlap bags over the treated area until the minimum dosage is achieved and all the crystals have been dissolved. The minimum treatment interval is 14 days. If the treated water is to be used as a source of potable water, the metallic copper concentration must not exceed one ppm (4 ppm Copper Sulfate).

COPPER SULFATE REQUIRED FOR TREATMENT OF DIFFERENT GENERA OF ALGAE:

The genera of algae listed below are commonly found in impounded water, lakes, ponds, and reservoirs in the United States. Use the lower recommended rate of Copper Sulfate in soft waters (less than 50 ppm methyl orange alkalinity) and higher concentration in hard water (above 50 ppm alkalinity).

NOTE: Do not use concentration of $1\frac{1}{2}$ ppm or more where fish are present. Concentrations up to 6 ppm are permitted in waters such as rice fields where fish are not present. Always consult State Fish and Game Agency before applying this product to municipal waters.

CONCENTRATION:	¼ to ½ ppm	½ to 1 ppm	1 to 1½ ppm
POUNDS/ACRE FOOT:	.67 to 1.3	1.3 to 2.6	2.6 to 3.9

ORGANISM

Cyanophyceae (Blue Green)	Anabaena Anacystis Aphanizomenon Gloeotrichia Gomphosphaeria Polycystis Rivularia	Cylindrospermum Oscillatoris Pleustonema	Nostoc Phormidium	Calothrix Symploca
Chlorophyceae (Green)	Closterium Hydrodictyon Spirogyra Ulothrix	Botryococcus Cladophora Coelastrum Drapamaldia Enteromorpha Gloeocystis Microspora Tribonema Zygnema	Chlorella Crucigenia Desmidium Golenkinia Oocystis Palmelia Pithiphora Staurastrum Tetraedron	Ankistrodesmus Chara Nitella Scenedemus
Diatomaceae (Diatoms)	Asterionella Fragilaria Melorisa Navicula	Gomphonema Nitzschia Stephanodiscus Synedra Tabellaria	Achnanthes Cymbella Neidum	
Protozoa (Flageliates)	Dinobryon Synura Uroglena Volvox	Ceratium Cryptomonas Euglena Glenodinium Mallomonase	Chlamydomonas Hawmatococcus Peridinium	Eudorina Pandorina

CONTROL OF ALGAE AND BACTERIAL ODORS IN SWIMMING POOLS

To treat and prevent algae and odors, apply 1 tablespoon of Copper Sulfate Fine Crystals for every thousand gallons of pool water. This will result in a concentration of 1.0 ppm of dissolved copper. Prior to application, the pH of the pool should be 7.2-7.6. Dissolve the Copper Sulfate Fine Crystals in water in a plastic container and pour the solution into the pool around the edge of the pool. Never add Copper Sulfate Fine Crystals while swimming. As soon as the solution disperses in the pool water, you may reenter the pool.

Using a copper test kit (this may be purchased at any pool supply store) check copper levels every 2 weeks. As needed, apply a maintenance dosage to maintain a 0.7 to 1.0 ppm concentration. Prior to application, the pH of the pool should be 7.2-7.6. Dissolve the required amount of Copper Sulfate Fine Crystals in a plastic container and pour the solution into the pool around the edge of the pool.

Most pool shock products may be used with this product. During heavy usage shock pool once a week and use a filter clarifier. Copper Sulfate Fine Crystals is a very simple and easy way to maintain your pool water looking crystal clear year round with very little maintenance. When used as directed Copper Sulfate Fine Crystals may be used for all pools (consult your pool professional on plaster or finished concrete pools before adding).

[Optional Claims:] This Pool Maintenance formula: Is simple to use; Has no chlorine smells; May be used with any type of filter system; Controls algae and bacterial odors; Has very little effect on pH; Unlike other products Copper Sulfate Fine Crystals will not evaporate out of your water; Compatible with most pool chemicals.

SEWER TREATMENT-ROOT DESTROYER

NOTE: Do not use a sewer additive where prohibited by State Law. State Law prohibits the use of this product in sewer systems in the State of Connecticut. Not for sale or use in California counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma for root control in sewers. Not for sale or use in septic systems in the State of Florida

Plant roots can penetrate through small cracks and poorly sealed joints of sewer lines. If not controlled, these small roots will continue to grow larger in number causing breakage, reduced flow and eventually flow stoppage. This product has been known to be an effective means to control roots in residential and commercial sewers.

As a preventative measure, apply into each junction or terminal manhole. Two pounds of this product every 6 to 12 months. At time of reduced flow (some water is essential) add this product. If flow has not completely stopped, but has a reduced flow due to root masses, add this product in the next manhole above the reduced flow area. For complete stoppage, penetrate the mass with a rod to enable some flow before treatment.

RESIDENTIAL OR HOUSEHOLD SEWER SYSTEMS:

When a reduced water flow is first noticed, and root growth is thought to be the cause, treat with this product. It is important not to wait until a stoppage occurs because some water flow is necessary to move this product to the area of root growth. Usually, within 3 to 4 weeks, after roots have accumulated sufficient Copper Sulfate Pentahydrate, the roots will die and begin to decay and water flow should increase. As the roots regrow, follow-up treatments with this product may be required every 6 months. Applications may be made each year in the spring after plant growth begins, during late summer or early fall, or anytime a reduced water flow, thought to be caused by root growth, occurs. Apply one pound of this product every six months to household sewers. Add this product to sewer lines by pouring about ½ pound increments into the toilet bowl nearest the sewer line and flush. Repeat this process until recommended dose has been added. Or remove cleanout plug and pour entire recommended quantity directly into the sewer line. Replace the plug and flush toilet several times. Do not apply Copper Sulfate through sink or tub as it will corrode metal drains. If system is equipped with septic tank, Copper Sulfate will precipitate in the septic tank and little will pass into the absorption drain field. To treat drain field pipes, add 2 pounds of Copper Sulfate once a year to the distribution box located between the septic tank and the drain field. If the distribution box does not have an opening, it would be advisable to install a

clean out plug opening into the outlet pipe from the septic tank leading to the drain field for effective root control in the drain field pipes.

**CONDITION OF SALE
LIMITED WARRANTY AND LIMITATIONS
OF LIABILITY AND REMEDIES**

Read and follow all package directions carefully. Purchaser and user assume all risks associated with improper use, or application or other factors beyond Old Bridge's control. Old Bridge warrants that this product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use subject to the risks referred above.

OLD BRIDGE MAKES NO AND THE LAW SHALL NOT FIND ANY EXPRESSED OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. To the extent consistent with applicable law, purchaser's use and sole remedy against Old Bridge for any cause of action related to the handling or use of this product shall be for damages, for the amount of which shall not exceed the price paid for the product that causes the alleged loss, damages, injury, or other claim to the extent consistent with applicable law. In no event shall Old Bridge be liable for special, indirect, incidental or consequential damages or expenses. By purchasing or using this product, purchaser or user accept the foregoing conditions of sale and limitation of warranty, liability, and remedies.

**ENVIRONMENTALLY HAZARDOUS
SUBSTANCE
SOLID, N.O.S. (CUPRIC SULFATE),
9, UN3077, PG III, RQ
CAS NO. 7758-99-8**

For Technical Information and MSDS Call Old Bridge Chemicals at (732) 727-2225
or e-mail: sales@oldbridgechem.com
**OLD BRIDGE CHEMICALS
554 Waterworks Road
OLD BRIDGE, NEW JERSEY 08857
OLD BRIDGE CHEMICALS, INC**

CLL Amendment 20130221
EPA comments 20130419 and 20130430

Issue Date 02-May-2013

Revision Date 03-May-2013

Version 1

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name Copper Sulfate Pentahydrate

Other Means of Identification

SDS # OBC-007

UN/ID No UN3077

Synonyms Blue Vitrol, Bluestone, Cupric Sulfate

Recommended Use of the Chemical and Restrictions on Use

Recommended Use For industrial use.

Details of the Supplier of the Safety Data Sheet

Manufacturer Address

Old Bridge Chemicals, Inc.

554 Waterworks Rd.

Old Bridge, NJ 08857

Emergency Telephone Number

Company Phone Number (732) 727-2225 (normal business hours)

(800) 275-3924 (24 hour number)

Emergency Telephone Chemtrec 1-800-424-9300 (North America) 1-703-527-3887 (International)

2. HAZARDS IDENTIFICATION

Classification

Acute toxicity - Oral	Category 4
Acute toxicity - Dermal	Category 4

Signal Word

Warning

Hazard Statements

Harmful if swallowed

Harmful in contact with skin



Appearance Transparent blue crystals or blue powder

Physical State Solid

Odor Odorless

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product
 Wear protective gloves/protective clothing

Precautionary Statements - Response

IF ON SKIN: Wash with plenty of soap and water
 Take off contaminated clothing and wash it before reuse
 Call a POISON CENTER or doctor/physician if you feel unwell
 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
 Rinse mouth

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other Hazards

Toxic to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms Blue Vitrol, Bluestone, Cupric Sulfate.

Chemical Name	CAS No	Weight-%
Copper sulfate pentahydrate	7758-99-8	100

4. FIRST AID MEASURES

First Aid Measures

Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Skin Contact	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. Call a POISON CENTER or doctor/physician if you feel unwell.
Inhalation	Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Ingestion	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Do NOT induce vomiting. Promptly drink large quantities of milk, egg white, gelatin solution, or if these are not available, drink large quantities of water. Never give anything by mouth to an unconscious person. Avoid alcohol.

Most Important Symptoms and Effects, both Acute and Delayed

Symptoms	Causes skin irritation. Repeated or prolonged contact may cause allergic dermatitis. May cause irritation or burns on wet skin. May cause eye irritation. Irritates the digestive tract. Abdominal discomfort. Inhalation of dust can result in irritation of nasal mucous membranes and sometimes of the pharynx. On occasion ulceration with perforation of the nasal septum.
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Indication of any Immediate Medical Attention and Special Treatment Needed**Note to Physicians**

Treat symptomatically. Material may be corrosive. Possible mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsions may be necessary. Wilson's disease can be aggravated by excessive exposure. Symptoms include nausea, vomiting, epigastria pain, diarrhea, jaundice, and general debility.

5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media**

Dry chemical, CO2 or water spray. Copper Sulfate does not burn nor will it support combustion.

Unsuitable Extinguishing Media

If dry heated above 600 °C/ 1112 °F, SO2 is evolved. If water is used it will solubilize the Copper Sulfate and care should be taken to keep such water out of streams or other bodies of water.

Specific Hazards Arising from the Chemical

Not determined.

Hazardous Combustion Products

If heated above 400°C/ 752°F product can decompose to emit toxic fumes of oxide and sulfur.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES**Personal Precautions, Protective Equipment and Emergency Procedures****Personal Precautions**

Use personal protective equipment as required.

Methods and Material for Containment and Cleaning Up**Methods for Containment**

Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up

Avoid the generation of dusts during clean-up. Wear NIOSH or MSHA approved respirator if dust will be generated. Dry sweep up, using a sweeping compound. Shovel spill material into plastic bags and seal with tape. Place in appropriate containers for disposal. Dispose of contents/container to an approved waste disposal plant. Prevent run off to storm sewers and ditches leading to natural waterways.

7. HANDLING AND STORAGE**Precautions for Safe Handling****Advice on Safe Handling**

Use personal protection recommended in Section 8. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wash thoroughly after handling before eating, drinking, smoking, or using toilet facilities. Wear protective gloves/protective clothing. Wash outside of gloves before removing. Wash and change into clean clothing as soon as possible.

Conditions for Safe Storage, Including any Incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Store away from reducing agents. Keep away from galvanized pipe, aluminum and nylon. Store in original containers. Place damaged containers in plastic bags. Iron and moisture should be avoided. With exposure to air it will oxidize and turn whitish.
Packaging Materials	Solutions are mildly corrosive to steel. Store in plastic or rubber or 304, 347 or 316 stainless steel.
Incompatible Materials	Aluminum powders. Acetylene. Hydroxylamine. Magnesium. Moisture. Contact with magnesium can generate dangerous levels of hydrogen gas.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Exposure Guidelines**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Copper sulfate pentahydrate 7758-99-8	TWA: 1 mg/m ³ Cu dust and mist	TWA: 1 mg/m ³ Cu dust and mist	IDLH: 100 mg/m ³ Cu dust and mist TWA: 1 mg/m ³ Cu dust and mist

Appropriate Engineering Controls

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Eyewash stations. Showers.
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Individual Protection Measures, such as Personal Protective Equipment

Eye/Face Protection	Wear safety glasses with side shields (or goggles).
Skin and Body Protection	Wear long-sleeved shirt, long pants, and shoes plus socks. Wear waterproof gloves. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with product's concentrate. Do not reuse them. Keep and wash PPE separately from other laundry.
Respiratory Protection	If necessary, wear an approved respirator for dusts or mists: MSHA/NIOSH approved number prefix TC-21C, or a NIOSH approved respirator with any R, P or HE filter. Alternatively, provide respiratory protection in accordance with Paragraph 1910.134 of Title 29 of the Code of Federal Regulations.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on Basic Physical and Chemical Properties**

Physical State	Solid	Odor	Odorless
Appearance	Transparent blue crystals or blue powder	Odor Threshold	Not determined
Color	Blue		
<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>	
pH	Not Applicable		
Melting Point/Freezing Point	110 °C / 230 °F		
Boiling Point/Boiling Range	150 °C / 302 °F		
Flash Point	Not determined		
Evaporation Rate	Not Applicable		
Flammability (Solid, Gas)	Not determined		

Upper Flammability Limits	Not determined	
Lower Flammability Limit	Not determined	
Vapor Pressure	Not Applicable	
Vapor Density	Not Applicable	
Specific Gravity	2.284	
Water Solubility	22.37%	@ 0 °C / 32 °F
Solubility in Other Solvents	Soluble in methanol, glycerol and slightly soluble in ethanol	
Partition Coefficient	Not determined	
Autoignition Temperature	Not determined	
Decomposition Temperature	Not determined	
Kinematic Viscosity	Not determined	
Dynamic Viscosity	Not determined	
Explosive Properties	Not determined	
Oxidizing Properties	Not determined	

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions.

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing. Does not react with water.

Hazardous Polymerization Hazardous polymerization does not occur.

Conditions to Avoid

Keep out of reach of children. Solutions are mildly corrosive to steel. Store in plastic or rubber or 304, 347 or 316 stainless steel.

Incompatible Materials

Aluminum powders. Acetylene. Hydroxylamine. Magnesium. Moisture. Contact with magnesium can generate dangerous levels of hydrogen gas.

Hazardous Decomposition Products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. If dry heated above 600° C/ 1112°F toxic sulfur may evolve.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Eye Contact	Avoid contact with eyes.
Skin Contact	Harmful in contact with skin.
Inhalation	Avoid inhalation of dust.
Ingestion	Harmful if swallowed.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Copper sulfate pentahydrate 7758-99-8	= 472 mg/kg (Rat)	> 2 g/kg (Rat)	> 2.95 mg/L (Rat)

Information on Physical, Chemical and Toxicological Effects

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-term Exposure

Carcinogenicity This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Numerical Measures of Toxicity

Not determined

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Copper sulfate pentahydrate 7758-99-8		0.66 - 1.15: 96 h Lepomis macrochirus mg/L LC50 semi-static 0.96 - 1.8: 96 h Lepomis macrochirus mg/L LC50 static 0.1478 - 0.165: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.09 - 0.19: 96 h Oncorhynchus mykiss mg/L LC50 static 0.6752: 96 h Pimephales promelas mg/L LC50 static		0.147 - 0.227: 48 h Daphnia magna mg/L EC50 Static

Persistence and Degradability

Not determined

Bioaccumulation

Not determined

Mobility

Not determined

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

- Disposal of Wastes** Disposal should be in accordance with applicable regional, national and local laws and regulations. With prior approval the material can be returned to the manufacturer.
- Contaminated Packaging** Disposal should be in accordance with applicable regional, national and local laws and regulations.

Chemical Name	California Hazardous Waste Status
Copper sulfate pentahydrate 7758-99-8	Toxic

14. TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT When shipped domestically in non-bulk packages weighing less than 10 lbs., product is NOT REGULATED for ground transportation. The following DOT description for shipping as REGULATED only applies when shipping in packages containing more than 10 lbs. of product. When this is the case, drivers are required to have Hazmat Certification.

- UN/ID No** UN3077
- Proper Shipping Name** Environmentally Hazardous Substance, solid, n.o.s. (Cupric Sulfate)
- Hazard Class** 9
- Packing Group** III
- Reportable Quantity (RQ)** 10 lbs
- Marine Pollutant** This product contains a chemical which is listed as a severe marine pollutant according to DOT.
- Emergency Response Guide Number** 171

IATA

- UN/ID No** UN3077
- Proper Shipping Name** Environmentally Hazardous Substance, solid, n.o.s. (Cupric Sulfate)
- Hazard Class** 9
- Packing Group** III

IMDG

- UN/ID No** UN3077
- Proper Shipping Name** Environmentally Hazardous Substance, solid, n.o.s. (Cupric Sulfate)
- Hazard Class** 9
- Packing Group** III
- Marine Pollutant** This product contains a chemical which is listed as a severe marine pollutant according to IMDG/IMO

15. REGULATORY INFORMATION

International Inventories

TSCA

Listed

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

US Federal Regulations

CERCLA

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Copper sulfate pentahydrate 7758-99-8	10 lbs	10 lbs	10 lbs

SARA 311/312 Hazard Categories

Acute health hazard

Yes

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
Copper sulfate pentahydrate - 7758-99-8	7758-99-8	100	1.0

CWA (Clean Water Act)

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Copper sulfate pentahydrate 7758-99-8 (100)		X		

US State Regulations

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Copper sulfate pentahydrate 7758-99-8	X		X

16. OTHER INFORMATION

<u>NFPA</u>	Health Hazards	Flammability	Instability	Special Hazards Not determined
	3	0	0	Personal
<u>HMIS</u>	Health Hazards	Flammability	Physical Hazards	Protection Not determined
	3	0	0	

Issue Date 02-May-2013
Revision Date 03-May-2013
Revision Note New format

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Clearcast®

Herbicide



GROUP 2 HERBICIDE

FOR THE CONTROL OF VEGETATION IN AND AROUND AQUATIC AND NON-CROPLAND SITES INCLUDING AREAS THAT MAY BE GRAZED OR CUT FOR HAY

Active Ingredient:

ammonium salt of imazamox 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-(methoxymethyl)-3-pyridinecarboxylic acid† 12.1%

Other Ingredients 87.9%

TOTAL 100.0%

† Equivalent to 11.4% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-(methoxymethyl)-3-pyridinecarboxylic acid
1 gallon contains 1.0 pound of active ingredient as the free acid

Keep Out of Reach of Children CAUTION/PRECAUCIÓN

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

See inside for complete Precautionary Statements, Directions for Use, Conditions of Sale and Warranty, and state-specific crop and/or use site restrictions.

Notice: Read the entire label before using. Use only according to label directions. Before buying or using this product, read Warranty Disclaimer and Misuse statements inside label booklet. If terms are unacceptable, return at once unopened.

EPA Reg. No. 241-437-67690
EPA Est. No. 067690-NC-002
NVA 2016-04-299-0160

FPL20161026
166801

Manufactured for:
SePRO Corporation 11550 N. Meridian St., Ste. 600, Carmel, IN 46032 U.S.A.

Keep Out of Reach of Children CAUTION/PRECAUCIÓN

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

FIRST AID	
If on skin or clothing	<ul style="list-style-type: none"> 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.
If in eyes	<ul style="list-style-type: none"> Hold eyes 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 eyes. Call a poison control center or doctor for treatment advice.
If inhaled	<ul style="list-style-type: none"> Move person to fresh air. If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably mouth to mouth if possible. Call a poison control center or doctor for further treatment advice.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. In case of an emergency endangering life or property involving this product, call INFOTRAC for emergency medical treatment information: 1-800-535-5053 .	

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION. Harmful if absorbed through skin or inhaled. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with skin, eyes or clothing.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants;
- Chemical-resistant gloves such as barrier laminate, butyl rubber ≥14 mils, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, natural rubber (includes natural rubber blends and laminates) ≥ 14 mils, polyethylene, polyvinyl chloride (PVC) ≥ 14 mils, or Viton ≥ 14 mils;
- Shoes plus socks.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

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. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide may be hazardous to plants outside the treated area. **DO NOT** apply to water except as specified in this label. **DO NOT** contaminate water when disposing of equipment washwaters and rinsate.

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling. This labeling must be in the possession of the user at the time of pesticide application.

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 requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Ensure spray drift to nontarget susceptible species does not occur.

DO NOT apply Clearcast® Herbicide in any manner not specifically described in this label.

Observe all cautions and limitations on this label and on the labels of products used in combination with **Clearcast**.

DO NOT use Clearcast other than in accordance with the instructions set forth on this label. Keep containers closed to avoid spills and contamination.

STORAGE AND DISPOSAL

DO NOT contaminate food, feed or water by storage or disposal.

Pesticide Storage

Keep from freezing. **DO NOT** store below 32°F.

Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on-site or at an approved waste disposal facility.

Container Handling

Nonrefillable Container. DO NOT reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Triple rinse containers small enough to shake (capacity ≤ 5 gallons)

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 two more times.

Triple rinse containers too large to shake (capacity >5 gallons) 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 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

STORAGE AND DISPOSAL *(continued)*

equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or 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.

Refillable Container. Refill this container with pesticide only.

DO NOT reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

Triple rinse as follows: 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 two more times.

When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with a pesticide product. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

IN CASE OF EMERGENCY

In case of large-scale spill of this product, call INFOTRAC at 1-800-535-5053.

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- INFOTRAC: 1-800-535-5053

Steps to take if material is released or spilled:

- Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal.
- Remove contaminated clothing, and wash affected skin areas with soap and water.
- Wash clothing before reuse.
- Keep the spill out of all sewers and open bodies of water.

PRODUCT INFORMATION

Clearcast® herbicide is an aqueous formulation that may be diluted in water and either applied directly to water for the control/suppression of certain submerged aquatic vegetation or applied as a broadcast or spot spray to floating and emergent vegetation. Aquatic sites that may be treated include estuarine and marine sites, ponds, lakes, reservoirs, wetlands, marshes, swamps, bayous, arroyos, ditches, canals, streams, rivers, creeks and other slow-moving or quiescent bodies of water. **Clearcast** may also be used during drawdown conditions. **Clearcast** may also be applied for terrestrial and riparian vegetation control in industrial noncropland sites, and railroad, utility, and highway rights-of-way. Industrial noncropland sites include utility plant sites, tank farms, pumping installations, storage areas, fence rows and ditch banks. **Clearcast** may also be used for the establishment and maintenance of wildlife openings. **Clearcast** may also be used on those sites listed above that may be grazed or cut for hay.

Clearcast is quickly absorbed by foliage and/or plant roots and rapidly translocated to the growing points stopping growth. Susceptible plants may develop a yellow appearance or general discoloration and will eventually die or be severely growth inhibited.

Clearcast is herbicidally active on many submerged, emergent and floating broadleaf and monocot aquatic plants. The relative levels of control and selectivity can be manipulated by using a choice of rates and herbicide placement (water injected or floating/emergent foliar application).

To help maintain the utility of herbicide programs, the use of herbicides with different modes of action is effective in managing weed resistance.

Spray Adjuvants

Applications of **Clearcast** to emergent, floating or shoreline species require the use of a spray adjuvant. Always use a spray adjuvant that is appropriate for aquatic sites.

Nonionic Surfactants - Use a nonionic surfactant at 0.25% volume/volume (v/v) or higher (see manufacturer's label) of the spray solution (0.25% v/v is equivalent to 1 quart in 100 gallons). For best results, select a nonionic surfactant with an HLB (hydrophilic to lipophilic balance) ratio between 12 and 17 with at least 70% surfactant in the formulated product (alcohols, fatty acids, oils, ethylene glycol or diethylene glycol should not be considered as surfactants to meet the above requirements).

Methylated Seed Oils or Vegetable Oil Concentrates - Instead of a surfactant, a methylated seed oil or vegetable-based seed oil concentrate may be used at 1.5 to 2 pints per acre. When using spray volumes greater than 30 gallons per acre, mix methylated seed oil or vegetable-based seed oil concentrates at 1% of the total spray volume, or alternatively use a nonionic surfactant as described above. Research indicates that these oils may aid in **Clearcast** deposition and uptake by plants under stress.

Silicone-based Surfactants - See manufacturer's label for specific rates. Silicone-based surfactants may reduce the surface tension of the spray droplet allowing greater spreading on the leaf surface as compared to conventional nonionic surfactants. However, some silicone-based surfactants may dry too quickly, limiting herbicide uptake.

Invert Emulsions - **Clearcast** can be applied as an invert emulsion. The spray solution results in an invert (water-in-oil) spray emulsion designed to minimize spray drift and spray runoff, resulting in more herbicide on the target foliage. The spray emulsion may be formed in a single tank (batch mixing) or injected (in-line mixing). Consult the invert chemical label for proper mixing directions.

Other - An antifoaming agent, spray pattern indicator, sinking agent or drift-reducing agent may be applied at the product labeled rate if necessary or desired.

Spray Drift Requirements for Aerial Application

- Applicators are required to use a coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater for release heights below 10 feet. Applicators are required to use a very coarse or coarser droplet size or, if specifically using a spinning atomizer nozzle, applicators are required to use a VMD of 475 microns or greater for release heights above 10 feet. Applicators must consider the effects of nozzle orientation and flight speed when determining droplet size.
- Applicators are required to use upwind swath displacement.
- The boom length must not exceed 60% of the fixed wingspan or 90% of the rotor blade diameter to reduce spray drift.
- **DO NOT** apply when wind speed is greater than 10 mph.
- If applying at wind speeds less than 3 mph, the applicator must determine if
 1. Conditions of temperature inversion exist or
 2. Stable atmospheric conditions exist at or below nozzle height.

DO NOT make applications into areas of temperature inversions or stable atmospheric conditions.

Spray Drift Requirements for Ground Boom Application

- Applicators are required to use a nozzle height below 4 feet above the ground or plant canopy and coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater.
- Applications with wind speeds greater than 10 mph are prohibited.
- Applications into temperature inversions are prohibited.

DO NOT apply when wind conditions may result in drift, when temperature inversion conditions exist, or when spray may be carried to sensitive areas. See *Managing Off-target Movement* section for more drift reduction recommendations.

AQUATIC USE DIRECTIONS

Clearcast® herbicide may be applied directly to the water for the control of submerged aquatic plant species and some emergent and floating species, or as a foliar application specifically for emergent and floating species.

DO NOT exceed maximum use rate per application:

- Water treatment - 500 parts per billion (ppb) (173 fl ozs of **Clearcast** per acre foot)
- Foliar broadcast application - 1 gallon per acre (1.0 lb ae/A)
- Foliar spot application - up to 5% **Clearcast** by volume

Clearcast may be applied by surface and aerial equipment including both fixed-wing aircraft and helicopter.

Foliar Application

Targeted Emergent and/or Floating Vegetation Application

To make surface applications targeting emergent or floating vegetation, uniformly apply with properly calibrated broadcast or spot treatment equipment in 10 or more gallons of water per acre. Spot treatments can be made with up to 5% **Clearcast** by volume. To ensure thorough spray coverage, higher spray volumes may be required when treating areas with large and/or dense vegetation. Use an appropriate spray pressure to minimize the drift potential depending upon spray equipment, conditions and application objectives.

Foliar Treatment of Emergent and Floating Vegetation Guidelines

- Always use a surfactant for foliar applications of emergent and floating weeds.
- Foliar applications of **Clearcast** may be made as a broadcast spray or as a spot spray with a percent spray solution ranging from 0.25% to 5% **Clearcast** by volume.
- Control will be reduced if spray is washed off foliage by wave action.

In aquatic sites, those application techniques described in the *Terrestrial Use Directions* section may be used to treat emergent vegetation.

Application to Water

Water Application to Target Submerged and/or Emergent/Floating Vegetation

Clearcast may be broadcast-applied to the water surface or injected below the water surface. **Clearcast** may be applied as undiluted product or diluted with water prior to application. Under surface-matted conditions, inject **Clearcast** below the water surface to achieve better product distribution.

Apply **Clearcast** to water to achieve a final concentration of the active ingredient of no more than 500 ppb. Multiple applications of **Clearcast** may be made during the annual growth cycle to maintain the desired vegetation response.

Clearcast Rates Per Treated Surface Acre				
Average Water Depth of Treatment Site (feet)	Desired Active Ingredient Concentration (ppb) [†]			
	50	100	200	500
	Clearcast Rate per Treated Surface Acre (fl ozs)			
1	17	35	69	173
2	35	69	138	346
3	52	104	207	518
4	70	138	277	691
5	87	173	346	864
6	104	207	415	1,037
7	122	242	484	1,210
8	139	277	553	1,382
9	157	311	622	1,555
10	174	346	691	1,728

[†]**Clearcast** contains 1.0 pound of active ingredient per gallon. There are 128 fl ozs in one gallon.

Aerial Application

Clearcast may be applied by both fixed-wing aircraft and helicopter. There is no minimum spray volume when making applications directly to the water. For applications targeting emergent and/or floating vegetation, uniformly apply with properly calibrated equipment in 5 or more gallons of water per surface acre. For best results, make aerial applications using a minimum of 20 gallons per acre.

Drawdown Application

Clearcast may be used in drawdown situations to provide postemergence and/or preemergence control/suppression of aquatic vegetation. Apply **Clearcast** as a broadcast spray at rates up to 1 gallon/A or as a spot spray treatment with up to 5% **Clearcast** by volume. Make applications when water has receded and exposed soil is moist to dry. For postemergence (foliar) applications, wait at least two weeks after application before reintroducing water. When treating irrigation canals, the initial flush of recharge water after application must not be used for irrigation purposes.

RESTRICTIONS

- **DO NOT** apply **Clearcast** to achieve a total active ingredient concentration in the water greater than 500 ppb.
- **DO NOT** apply more than 1 gallon of **Clearcast** per surface acre for the control of emergent and floating vegetation.

Irrigation Restrictions

- **DO NOT** use treated water to irrigate greenhouses, nurseries or hydroponics until the imazamox concentration has been determined by an acceptable method to be less than or equal to 1.0 ppb.
- **DO NOT** plant sugar beets, onions, potatoes or non-CLEARFIELD® canola in soils that have been previously irrigated with **Clearcast**-treated water until a soil bioassay successfully demonstrates acceptable levels of crop tolerance. The only exception to this restriction is if the water is from foliar applications to emergent and/or floating vegetation in flowing water sites where it has been applied at less than or equal to 1.5 quarts per acre to waters with an average depth of greater than or equal to 4 feet.
- **DO NOT** use **Clearcast**-treated waters resulting in a concentration greater than 50 ppb for irrigation of established (emerged) plants until residue levels have been shown to be less than or equal to 50 ppb by an acceptable method.
- **DO NOT** make **Clearcast** applications in and around golf course irrigation, sod farm irrigation, and vineyard irrigation waterbodies without testing potential irrigation water prior to irrigation and confirming the imazamox concentration to be less than or equal to 1.0 ppb.
- In still or quiescent waters, do not use **Clearcast**-treated water resulting in a concentration greater than 10 ppb for irrigation of newly seeded or newly established plants until residue levels have been shown to be less than or equal to 10 ppb by an acceptable method.
- Wait 24 hours before irrigating from still or quiescent waters after making a **Clearcast** application for submerged vegetation less than 100 feet from an irrigation intake.
- Wait 24 hours before irrigating from still and quiescent waters after making a **Clearcast** application to emergent and/or floating vegetation if greater than 25% of the surface area of the water body has been treated or application was made less than 100 feet from an irrigation intake.
- Flowing waters may be used to irrigate allowable sites with no restrictions when **Clearcast** is applied at less than or equal to 2 quarts per acre to waters with an average depth of greater than or equal to 4 feet.
- After application of **Clearcast** to dry irrigation canals/ditches, the initial flush of water during recharge must not be used for irrigation purposes unless the imazamox concentration has been determined by an acceptable method to be less than 25 ppb.

Clearcast applied at less than or equal to 2 quarts per acre in or on waters with a minimum average depth greater than or equal to 4 feet will result in **Clearcast** concentrations less than 50 ppb.

Other Water Use Restrictions

There are no restrictions on livestock watering, swimming, fishing, domestic use, or use of treated water for agricultural sprays.

Potable Water

Clearcast may be applied to potable water sources at concentrations up to 500 ppb to within a distance of ¼ mile from an active potable water intake. Within ¼ mile of an active potable water intake, **Clearcast** may be applied, but water concentrations resulting from injection and/or foliar applications may not exceed 50 ppb. If water concentrations greater than 50 ppb are required, the potable water intake must be shut and, if necessary, an alternate water supply be made available until the water concentration can be shown to be less than 50 ppb by an acceptable method.

Endangered Plant Species

To prevent potential negative impacts to endangered plant species, **DO NOT** apply **Clearcast** in a way that adversely affects federally listed endangered and threatened species.

WEEDS CONTROLLED OR SUPPRESSED BY CLEARCAST

Efficacy and selectivity of **Clearcast** is dependent upon many factors including: dose, time of year, stage of plant growth, plant susceptibility, method of application, and water movement. Rate selection will be partially dependent on characteristics of the treatment area and whether growth regulation or control is desired. Some areas may require a repeat application to control or suppress regrowth. Consult SePRO Corporation to determine best treatment protocols to manage individual species and to meet specific aquatic plant management objectives.

Emergent, Floating, and Shoreline Species Controlled with Foliar Application			
Common Name	Scientific Name	Rate (fl ozs/A)	Comments
Alligatorweed	<i>Alternanthera philoxeroides</i>	64 to 128	Repeat applications may be necessary. Add 1 qt/A of AquaPro® herbicide for quicker brownout.
American lotus	<i>Nelumbo lutea</i>	64 to 128	
Arrowhead	<i>Sagittaria</i> spp.	32 to 64	
Cattail	<i>Typha</i> spp.	32 to 64	Apply after full green up through killing frost.
Chinese tallowtree	<i>Sapium sebiferum</i>	64 to 128	
Common reed	<i>Phragmites</i> spp.	96 to 128	Use 1 qt/A methylated seed oil (MSO); apply in late vegetative stage up to killing frost. Also apply as a spot treatment using 1% to 2% Clearcast per spray volume. Older stands of phragmites and stands growing in water may be more difficult to control and will require follow-up applications.
Common salvinia	<i>Salvinia minima</i>	32 to 64	Apply with MSO or MSO + silicone-based surfactant; retreatment will be necessary.
Floating heart	<i>Nymphoides</i> spp.	64 to 128	Also apply as a spot treatment using 2% to 5% Clearcast and 1% MSO per spray volume.
Floating pennywort	<i>Hydrocotyle ranunculoides</i>	32 to 64	Repeat applications may be necessary.
Flowering rush	<i>Butomus umbellatus</i>	64 to 128	
Four-leaf clover	<i>Marsilea</i> spp.	32 to 64	
Frog's bit, Sponge plant	<i>Lymnobia</i> spp.	16 to 32	
Giant cane	<i>Arundo donax</i>	64 to 128	
Japanese knotweed	<i>Polygonum cuspidatum</i>	64 to 128	
Mexican lily	<i>Nymphaea mexicana</i>	32 to 64	
Mosquito fern	<i>Azolla</i> spp.	—	Apply using 2% to 5% Clearcast and 1% MSO by volume.
Parrotfeather	<i>Myriophyllum aquaticum</i>	64 to 128	Apply only to emergent vegetation.
Pickelweed	<i>Pontederia cordata</i>	32 to 64	
Saltcedar	<i>Tamarix</i> spp.	64 to 128	Also apply using 2% to 5% Clearcast and 1% MSO per spray volume.
Smartweed, ladysthumb Smartweed, Pennsylvania Smartweed, swamp	<i>Polygonum persicaria</i> , <i>Persicaria maculosa</i> <i>Polygonum pensylvanicum</i> , <i>Persicaria pennsylvanica</i> <i>Polygonum coccineum</i> , <i>Persicaria amphibia</i>	64 to 128	
Spatterdock	<i>Nuphar lutea</i>	64 to 128	
Variable-leaf milfoil	<i>Myriophyllum heterophyllum</i>	64 to 128	Apply with MSO (1% v/v) as an emergent foliar treatment when plants have emerged on the surface. Also apply as a spot treatment using 1% to 3% Clearcast per spray volume.
Water chestnut	<i>Trapa natans</i>	64 to 128	Apply with MSO to emergent part of plant. Also apply as a spot treatment using 2% to 5% Clearcast per spray volume.
Water hyacinth	<i>Eichhornia crassipes</i>	16 to 32	
Water lettuce	<i>Pistia stratiotes</i>	48 to 96	
Water lily	<i>Nymphaea</i> spp.	32 to 64	
Water primrose	<i>Ludwigia</i> spp.	32 to 64	Add 1 qt/A of AquaPro® herbicide for quicker brownout.
Watershield	<i>Brasenia schreberi</i>	48 to 64	
Wild taro	<i>Colocasia esculenta</i>	96 to 128	

Species Susceptible to Water-injected Applications

The following categories are provided to define species that may be growth regulated or controlled with 50 to 500 ppb **Clearcast® herbicide** following in-water applications: susceptible, moderately susceptible, and less susceptible. The rates associated with each susceptibility category, including the **Special Weed Control** section, are provided as guidance with the overriding allowance that an application rate from 50 to 500 ppb may be used depending on the aquatic vegetation management objective and the characteristics of the aquatic vegetation and water body being treated.

Some species that are susceptible to foliar applications of **Clearcast** may be less susceptible to in-water applications. Use of higher rates are necessary to achieve desired control/suppression in areas of greater water exchange; when treating more mature or less susceptible plants; when targeting more difficult-to-control aquatic species; and when treating small areas in larger

bodies of water (partial or spot treatments). Lower concentrations are generally used when conducting early season large-scale treatments; when greater selectivity is desired; and treating larger areas, more immature or susceptible plants, and areas with less potential for rapid water exchange.

Use of lower rates may increase selectivity on some species within the same category. Effects on susceptible plants can range from control to growth regulation depending on treatment site characteristics, exposure time, and application rate. Susceptible plant species may exhibit herbicide stress or reduced growth during active treatment phases. Whole lake applications with lower rates may provide plant growth regulation or greater selectivity while higher rates will generally provide broader activity.

Susceptible Vascular Aquatic Plants (50 to 200 ppb)

Common Name	Scientific Name
Curlyleaf pondweed	<i>Potamogeton crispus</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Hydrilla	<i>Hydrilla verticillata</i>
Sago pondweed	<i>Stuckenia pectinata</i>
Water hyacinth	<i>Eichhornia crassipes</i>
Water stargrass	<i>Heteranthera dubia</i>

Moderately Susceptible Vascular Aquatic Plants (100 to 300 ppb)

Common Name	Scientific Name
American pondweed	<i>Potamogeton nodosus</i>
Bladderwort	<i>Utricularia</i> spp.
Frog's bit	<i>Lymnobium spongia</i>
Illinois pondweed	<i>Potamogeton illinoensis</i>
Pickerelweed	<i>Pontederia cordata</i>
Salvinia	<i>Salvinia</i> spp.
Spikerush	<i>Eleocharis baldwinii</i>
Variable-leaf milfoil	<i>Myriophyllum heterophyllum</i>
Wigeon grass	<i>Ruppia maritima</i>

Less Susceptible Vascular Aquatic Plants (200 to 500 ppb)

Common Name	Scientific Name
Bulrush	<i>Schoenoplectus californicus</i>
Cattail	<i>Typha</i> spp.
Coontail	<i>Ceratophyllum demersum</i>
Eelgrass, Japanese	<i>Zostera japonica</i>
Egeria	<i>Egeria densa</i>
Flowering rush	<i>Butomus umbellatus</i>
Southern naiad	<i>Najas guadalupensis</i>
Spatterdock	<i>Nuphar lutea</i>
Water lily	<i>Nymphaea odorata</i>
Watershield	<i>Brasenia schreberi</i>

Special Weed Control

Eurasian Watermilfoil. Apply **Clearcast herbicide** at 100 to 200 ppb to actively growing plants early in the growing season. Applications made to mature Eurasian watermilfoil (vegetation topped out) may require multiple applications.

Hydrilla. Apply **Clearcast** at 150 to 200 ppb to actively growing plants early in the growing season. Applications made prior to topped-out hydrilla may require repeat application. A single application of 50 to 75 ppb can be used to suppress and growth-regulate hydrilla for up to 10 to 12 weeks. If desired, an additional 50 to 75 ppb can be applied to extend the period of growth suppression when normal hydrilla growth resumes.

Japanese Eelgrass. Japanese eelgrass is a submerged aquatic plant which can be found in tidal and intertidal areas. **Clearcast herbicide** may be applied directly to the water or directly to the plant (e.g. at low tide).

• **Low-tide application** - To make applications when the plant is exposed at low tide, uniformly apply with properly calibrated broadcast or spot treatment equipment in 10 or more gallons of water per acre. An appropriate spray adjuvant approved for aquatic use may be used but is not required. Spot treatments can be made with up to 5% **Clearcast** by volume. To ensure thorough spray coverage, higher spray volumes may be required when treating areas with large and/or dense vegetation. Use an appropriate spray pressure to minimize drift potential depending upon spray equipment, conditions, and application objectives. Apply 4 fl ozs to 32 fl ozs **Clearcast/A**. Use the lower rate for management of seedlings. An appropriate aquatic use spray adjuvant may be used but is not required.

• **In-water application** - When Japanese eelgrass is submerged, **Clearcast** may be broadcast-applied to the water surface or injected below the water surface. **Clearcast** may be applied as undiluted product or diluted with water before application. Under surface-matted conditions, inject **Clearcast** below the water surface to achieve better product distribution. Apply **Clearcast** to water to achieve a final concentration of the active ingredient of no more than

500 ppb. Multiple applications of **Clearcast** may be made during the annual growth cycle to maintain the desired vegetation response.

Sago Pondweed. In dry ditches (drainage and irrigation), sago pondweed may be controlled or growth-suppressed with soil-applied **Clearcast** at 64 to 128 fl ozs/A. In irrigation canals, apply **Clearcast** after drawdown and prior to water recharge.

TERRESTRIAL USE DIRECTIONS

Restrictions

- The maximum amount of active ingredient that can be applied is 1 gallon (equivalent to 1 pound of active ingredient as the free acid) per acre per year.
- **DO NOT** exceed 2 applications of **Clearcast** per year.

Clearcast may be applied with ground and aerial equipment including both fixed-wing aircraft and helicopter. Applications may be made using foliar broadcast spray, foliar spot spray, injection (hack and squirt), frill and girdle, cut stump, or basal methods.

Broadcast Spray Application

DO NOT apply more than 1 gallon of **Clearcast** per acre per year.

Foliar Spot Application

Apply **Clearcast** as a percent solution, containing up to 5% **Clearcast** by volume.

Injection (Hack and Squirt), Frill and Girdle, and Cut Stump Application

Treatments may be made using up to 100% **Clearcast** by volume.

Basal Application

Treatments can be made using up to 25% **Clearcast** by volume. Basal applications require the use of a good emulsion system to maintain **Clearcast** in a stable emulsion with the penetrating agent being used.

All foliar applications of **Clearcast** require the use of a spray adjuvant. Refer to *Spray Adjuvants* section for additional information.

Managing Off-target Movement

The following information is general guidance for managing and minimizing off-target exposure of this product. Specific use directions in this label may vary from these general guidelines depending on the application method and objectives and should supersede the information provided below.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-related and weather-related factors determines the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications:

1. The distance of the outermost nozzles on the boom must not exceed $\frac{3}{4}$ the length of the fixed wingspan or 90% of rotor blade diameter.
2. Nozzles must always point backward parallel with the airstream and never be pointed downward more than 45 degrees.
3. **DO NOT** apply if wind speed is greater than 10 mph, except when making injection or subsurface applications to water.

Where states have more stringent regulations, they must be observed.

The applicator must be familiar with and take into account the information covered in the following aerial drift reduction advisory information.

Information on Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential but will not prevent drift if applications are made improperly or under unfavorable environmental conditions (see *Wind; Temperature and Humidity; and Temperature Inversions*).

Controlling Droplet Size:

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - **DO NOT** exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provides uniform coverage.

- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is recommended practice. Significant deflection from the horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid-stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length

For some use patterns, reducing the effective boom length to less than ¾ of the fixed wingspan or 90% of rotor blade diameter may further reduce drift without reducing swath width.

Application Height

Applications must not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment

When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the upwind and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller droplets, etc.).

Wind

Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application must be avoided below 2 mph due to variable wind direction and high inversion potential.

NOTE: Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions

Applications must not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing that causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light, variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light-to-no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified 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.

Sensitive Areas

The pesticide must only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, or crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

To the extent consistent with the applicable law, applicator is responsible for any loss or damage which results from spraying **Clearcast** in a manner other than directed in this label. In addition, applicator must follow all applicable state and local regulations and ordinances in regard to spraying.

Clearcast may be used for the control of the following plant species. **Clearcast** may be effective for the control or suppression of additional plant species not listed below. The use of **Clearcast** for the control or suppression of undesirable plants not listed below may be done at the discretion of the user.

To the extent consistent with applicable law, the user assumes responsibility for any lack of control or suppression associated with application to weeds not listed on this label.

Common Name	Scientific Name	Weeds Controlled	
		Rate Foliar (fl ozs/A)	Comments
Alligator weed	<i>Alternanthera philoxeroides</i>	64 to 128	Addition of AquaPro® herbicide will improve efficacy.
Annual ryegrass	<i>Lolium multiflorum</i>	16 to 32	
Artichoke, Jerusalem	<i>Helianthus tuberosus</i>	64 to 128	
Bedstraw	<i>Galium aparine</i>	64 to 128	
Beet, wild	<i>Beta procumbens</i>	64 to 128	
Brazilian pepper* Christmasberry*	<i>Schinus terebinthifolius</i>	96 to 128	Also apply using 2% to 5% Clearcast per spray volume
Buckwheat, wild	<i>Polygonum convolvulus</i>	64 to 128	
Buttercup	<i>Ranunculus</i> spp.	64 to 128	
California bulrush*	<i>Schoenoplectus californicus</i>	64 to 128	
Camphor tree*	<i>Cinnamomum camphora</i>	2% to 5% v/v	
Canola, volunteer (non- Clearfield ®)	<i>Brassica campestris</i> <i>Brassica napus</i>	64 to 128	
Cattail	<i>Typha</i> spp.	32 to 64	
Chickweed, common	<i>Stellaria media</i>	64 to 128	
Chinese tallowtree; Popcorn tree	<i>Sapium sebiferum</i>	64 to 128	See Special Weed Control section.
Cocklebur, common	<i>Xanthium strumarium</i>	64 to 128	
Filaree, redstem Filaree, whitestem	<i>Erodium cicutarium</i> <i>Erodium moschatum</i>	64 to 128	
Flixweed	<i>Descurainia sophia</i>	64 to 128	
Giant ragweed**	<i>Ambrosia trifida</i>	32 to 64	
Henbit	<i>Lamium amplexicaule</i>	64 to 128	
Jamaican nightshade*	<i>Solanum jamaicense</i>	2% to 5% v/v	
Japanese stiltgrass	<i>Microstegium vimineum</i>	32 to 64	Use MSO at 1% by spray volume. Clearcast will provide some residual control of subsequent seedling emergence.
Jimsonweed	<i>Datura stramonium</i>	64 to 128	

continued

Weeds Controlled (continued)			
Common Name	Scientific Name	Rate Foliar (fl ozs/A)	Comments
Johnsongrass, rhizome Johnsongrass, seedling	<i>Sorghum halepense</i>	32 to 64 16 to 32	
Knotweed, prostrate	<i>Polygonum aviculare</i>	64 to 128	
Kochia	<i>Kochia scoparia</i>	64 to 128	
Lambsquarters, common	<i>Chenopodium album</i>	64 to 128	
Lettuce, miner's	<i>Montia perfoliata</i>	64 to 128	
Mallow, common Mallow, Venice	<i>Malva neglecta</i> <i>Hibiscus trionum</i>	64 to 128	
Mustard spp.	<i>Brassica</i> spp.	64 to 128	
Nettle, burning	<i>Urtica urens</i>	64 to 128	
Nettleleaf goosefoot	<i>Chenopodium murale</i>	64 to 128	
Nightshade, black Nightshade, Eastern black Nightshade, hairy	<i>Solanum nigrum</i> <i>Solanum ptycanthum</i> <i>Solanum sarrachoides</i>	64 to 128	
Old world climbing fern*	<i>Lygodium microphyllum</i>	5% v/v	
Pennycress, field	<i>Thlaspi arvense</i>	64 to 128	
Phragmites*	<i>Phragmites australis</i>		Use 1 qt/A methylated seed oil (MSO); apply in late vegetative stage up to killing frost. Also apply as a spot treatment using 1% to 2% Clearcast per spray volume. Older stands of phragmites and stands growing in water may be more difficult to control and will require follow-up applications.
Pigweed, prostrate Pigweed, redroot Pigweed, smooth Pigweed, spiny	<i>Amaranthus blitoides</i> <i>Amaranthus retroflexus</i> <i>Amaranthus hybridus</i> <i>Amaranthus spinosus</i>	64 to 128	
Puncturevine	<i>Tribulus terrestris</i>	64 to 128	
Purple loosestrife*	<i>Lythrum salicaria</i>	32 to 64	
Purslane, common	<i>Portulaca oleracea</i>	64 to 128	
Radish, wild	<i>Raphanus raphanistrum</i>	64 to 128	
Ragweed, common Ragweed, giant	<i>Ambrosia artemisiifolia</i> <i>Ambrosia trifida</i>	64 to 128	
Rocket, London Rocket, yellow	<i>Sisymbrium irio</i> <i>Barbarea vulgaris</i>	64 to 128	
Saltcedar*	<i>Tamarix</i> spp.	64 to 128	Also apply using 2% to 5% Clearcast and 1% MSO per spray volume.
Sedge*, purple Sedge*, yellow	<i>Cyperus rotundus</i> <i>Cyperus esculentus</i>	32 to 64	Also apply using 2% to 5% Clearcast per spray volume.
Shepherd's-purse	<i>Capsella bursa-pastoris</i>	64 to 128	
Smartweed, ladythumb Smartweed, Pennsylvania Smartweed, swamp	<i>Polygonum persicaria</i> , <i>Persicaria maculosa</i> <i>Polygonum pennsylvanicum</i> , <i>Persicaria pennsylvanica</i> <i>Polygonum coccineum</i> , <i>Persicaria amphibia</i>	64 to 128	
Spike rush*	<i>Eleocharis</i> spp.	64 to 128	
Spurge, prostrate	<i>Euphorbia maculata</i>	64 to 128	
Sunflower, common	<i>Helianthus annuus</i>	64 to 128	
Swinecress	<i>Coronopus didymus</i>	64 to 128	
Tansymustard, green	<i>Descurainia pinnata</i>	64 to 128	
Taro	<i>Taro</i> spp.	64 to 128 5% v/v	
Thistle, Russian	<i>Salsola iberica</i>	64 to 128	
Tropical soda apple*	<i>Solanum viarum</i>	2% to 5% v/v	
Water primrose	<i>Ludwigia</i> spp.	32 to 64	Addition of AquaPro® herbicide will improve efficacy.
Wetland nightshade*	<i>Solanum tampicense</i>	2% to 5% v/v	
Whitetop* Hoary cress*	<i>Cardaria draba</i>	8 to 16	
Willoweed panicle	<i>Epilobium brachycarpum</i>	64 to 128	
Velvetleaf	<i>Abutilon theophrasti</i>	64 to 128	

* Use not permitted in California unless otherwise directed by supplemental labeling

** Suppression of larger, well-established plants

In general, the use of methylated seed oil (MSO) at 1% v/v will provide the best control with foliar applications.

Special Weed Control - Chinese tallowtree

Clearcast at 64 to 128 fl ozs/A or 0.5 to 2.0% v/v may be applied as a foliar application for selective control of Chinese tallowtree in and around tolerant tree species. Control Chinese tallowtree with foliar applications using aerial, handgun, or backpack application methods. When treating Chinese tallowtree, ensure that application method and spray volume provide adequate coverage of targeted Chinese tallowtree plants. Add methylated seed oil at 32 fl ozs/A for broadcast applications, or at 1% v/v for spot backpack and handgun applications. Tolerant hardwood species may exhibit varying degrees of leaf discoloration and temporary injury.

Areas that may be Grazed or Cut for Hay

Apply **Clearcast** to listed aquatic and terrestrial noncrop sites that may be grazed or cut for hay at a maximum use rate of 1 gallon per acre of **Clearcast** or 5% (v/v) spray solution for spot treatments. There are no grazing or haying restrictions.

Warranty Disclaimer: SePRO Corporation warrants that this product conforms to the chemical description on the product label. Testing and research have also determined that this product is reasonably fit for the uses described on the product label. To the extent consistent with applicable law, SePRO Corporation makes no other express or implied warranty of fitness or merchantability nor any other express or implied warranty and any such warranties are expressly disclaimed.

Misuse: Federal law prohibits the use of this product in a manner inconsistent with its label directions. To the extent consistent with applicable law, the buyer assumes responsibility for any adverse consequences if this product is not used according to its label directions. In no case shall SePRO Corporation be liable for any losses or damages resulting from the use, handling or application of this product in a manner inconsistent with its label.

For additional important labeling information regarding SePRO Corporation's Terms and Conditions of Use, Inherent Risks of Use and Limitation of Remedies, please visit <http://www.seprolabels.com/terms/> or scan the image below.



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SePRO Corporation

11550 North Meridian Street, Suite 600
Carmel, IN 46032, U.S.A.



Conforms to HazCom 2012/United States

SAFETY DATA SHEET



Clearcast

Herbicide

Section 1. Identification

GHS product identifier: Clearcast Herbicide
Other means of identification: Not available.
EPA Registration No.: 241-437-67690

Supplier's details : SePRO Corporation
11550 North Meridian Street
Suite 600
Carmel, IN 46032 U.S.A.
Tel: 317-580-8282
Toll free: 1-800-419-7779
Fax: 317-580-8290
Monday - Friday, 8am to 5pm
[E.S.T. www.sepro.com](http://www.sepro.com)

**Emergency telephone number
(with hours of operation):** INFOTRAC - 24-hour service 1-800-535-5053

The following recommendations for exposure controls and personal protection are intended for the manufacture, formulation and packaging of this product. For applications and/or use, consult the product label. The label directions supersede the text of this Safety Data Sheet for application and/or use.

Section 2. Hazards identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product: No need for classification according to GHS criteria for this product.

**Label elements
(Emergency overview)** The product does not require a hazard warning label in accordance with GHS criteria.

Hazards not otherwise classified

Labeling of special preparations (GHS):

The following percentage of the mixture consists of component(s) with unknown hazards regarding the acute toxicity:

- 0 - 2 % dermal
- 0 - 2 % oral
- 15 - 18 % Inhalation - vapor
- 15 - 18 % Inhalation – mist

**Emergency overview**

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAUTION:
HARMFUL IF ABSORBED THROUGH SKIN.
HARMFUL IF INHALED.
KEEP OUT OF REACH OF CHILDREN.
KEEP OUT OF REACH OF DOMESTIC ANIMALS.
Avoid contact with the skin, eyes and clothing.
Avoid inhalation of mists/vapors.

Section 3. Composition/information on ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Weight %	Chemical name
247057-22-3	12.1%	ammonium salt of imazamox (active ingredient)

Section 4. First aid measures**Description of first aid measures**

General advice: First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

If inhaled: Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary.

If on skin: Rinse skin immediately with plenty of water for 15 - 20 minutes.

If in eyes: Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

If swallowed: Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to by a poison control center or doctor. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

Most important symptoms and effects, both acute and delayed Symptoms: No significant reaction of the human body to the product known.

Indication of any immediate medical attention and special treatment needed

Note to physician Treatment: Symptomatic treatment (decontamination, vital functions).

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media:
Foam, dry powder, carbon dioxide, water spray

Special hazards arising from the substance or mixture**Hazards during fire-fighting:**

carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, Ammonium, Hydrocarbons, If product is heated above decomposition temperature, toxic vapours will be released. The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters**Protective equipment for fire-fighting:**

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information

Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

Section 6. Accidental release measures

Personal precautions protective equipment and emergency procedures

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water.

Methods and material for containment and cleaning up

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

Section 7. Handling and storage

Precautions for safe handling

RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Ensure adequate ventilation. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect contents from the effects of light. Protect against heat. Protect from air. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used as soon as possible. Avoid aerosol formation. Avoid dust formation. Provide means for controlling leaks and spills. Do not return residues to the storage containers. Follow label warnings



even after container is emptied. The substance/ product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapors. Wear suitable personal protective clothing and equipment.

Protection against fire and explosion: The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Sources of ignition should be kept well clear. Avoid extreme heat. Keep away from oxidizable substances. Electrical equipment should conform to national electric code. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

Conditions for safe storage, including any incompatibilities

Segregate from incompatible substances. Segregate from foods and animal feeds. Segregate from textiles and similar materials.

Further information on storage conditions:

Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination. The authority permits and storage regulations must be observed.

Storage stability:

If substance/product crystallizes, thaw at room temperature.

Protect from temperatures below: 0 °C. Changes in the properties of the product may occur if substance/product is stored below indicated temperature for extended periods of time.

Protect from temperatures above: 40 °C. Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

Section 8. Exposure controls/personal protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

Advice on system design: Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

Respiratory protection: Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) TC23C Chemical/Mechanical type filter system to remove a combination of particles, gas and vapours. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection: Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.



Eye protection:	Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.
Body protection:	Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.
General safety and hygiene measures:	Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

Section 9. Physical and chemical properties

Form:	liquid
Odor:	acidic, mild
Odor threshold:	No data available.
Color:	pale, yellow, clear
pH value:	approx. 5 – 7 (20 °C)
Freezing point:	approx. 0 °C (1,013.3 hPa) Information applies to the solvent.
Boiling point:	approx. 100 °C (1,013.3 hPa) Information applies to the solvent.
Flash point:	A flash point determination is unnecessary due to the high water content.
Flammability:	Based on the structure or composition there is no indication of flammability
Lower explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Upper explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Autoignition:	Based on the water content the product does not ignite.
Vapor pressure:	approx. 23.3 hPa (20 °C) Information applies to the solvent.
Density:	1.0486 g/cm ³ (20 °C) 8.7510 Lb/USg (68 °F)
Vapour density:	not applicable
Partitioning coefficient	not applicable

n-octanol/water (log Pow):

Thermal decomposition: carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, Ammonium, Hydrocarbons
Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released. If product is heated above decomposition temperature hazardous fumes may be released.

Viscosity, dynamic: 3.7 mPa.s (20 °C)

Solubility in water: soluble

Evaporation rate: not applicable

Molar mass: 320.4 g/mol

Other information: If necessary, information on other physical and chemical parameters is indicated in this section.

Section 10. Stability and reactivity

Reactivity

Additional information: No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals: Corrosive effects to metal are not anticipated.

Oxidizing properties: Not an oxidizer.

Chemical stability The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

Hazardous reactions: The product is chemically stable.
No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid

Conditions to avoid: Avoid all sources of ignition: heat, sparks, open flame. Avoid electro-static charge. Avoid prolonged storage. Avoid contamination. Avoid prolonged exposure to extreme heat. Avoid extreme temperatures.

Incompatible materials

Substances to avoid: oxidizing agents

Hazardous decomposition products

Decomposition products: Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition: Possible thermal decomposition products: carbon monoxide, carbon dioxide, nitrogen oxide, nitrogen dioxide, Ammonium, Hydrocarbons
Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released. If product is heated above decomposition temperature hazardous fumes may be released.

Section 11. Toxicological information

Primary routes of exposure Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Relatively nontoxic after single ingestion. Slightly toxic after short-term skin contact. Relatively nontoxic after short-term inhalation.

contact.

Product/ingredient name	Result	Species	Dose	Exposure
Clearcast	LC50 Inhalation Vapor	Rat	>5 mg/L	4 hours
	LD50 Dermal	Rat	>4000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-

Irritation / corrosion

Assessment of irritating effects: May cause slight but temporary irritation to the eyes. May cause slight irritation to the skin. May cause moderate but temporary irritation to the eyes.

Product/ingredient name	Result	Species	Score	Exposure	Observation
Clearcast	Eyes – non-irritant	Rabbit	-	-	-
	Skin – non-irritant	Rabbit	-	-	-

Sensitization

Assessment of sensitization: There is no evidence of a skin-sensitizing potential. modified Buehler test
Species: guinea pig
Result: Skin sensitizing effects were not observed in animal studies.

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. No substance-specific organ toxicity was observed after repeated administration to animals.

Genetic toxicity

Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Reproductive toxicity

Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity

Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

Other Information Misuse can be harmful to health.

Symptoms of Exposure No significant reaction of the human body to the product known.

Section 12. Ecological information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity: There is a high probability that the product is not acutely harmful to aquatic organisms.

Aquatic plants

EC50 (72 h) > 100 mg/l (growth rate), *Pseudokirchneriella subcapitata*

Toxicity to fish

Information on: imazamox

LC50 (96 h) > 119 mg/l, *Lepomis macrochirus*

Aquatic plants

Information on: imazamox

EC10 (7 d) 0.0095mg/l, *Lemna gibba*
 EC50 (72 h) 29.1 mg/l (growth rate), *Pseudokirchneriella subcapitata*
 EC50 (7 d) 0.031 mg/l (growth rate), *Lemna gibba*

Assessment of terrestrial toxicity

With high probability not acutely harmful to terrestrial organisms.

Other terrestrial non-mammals

Information on: 3-Pyridinecarboxylic acid, 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1Himidazol-2-yl]-5-(methoxymethyl)-

LC50, *Anas platyrhynchos*
 LD50 > 100 ug/bee, *Apis mellifera*

Persistence and degradability

Assessment biodegradation and elimination (H₂O)

The product has not been tested. The statement has been derived from the properties of the individual components.

Elimination information

Not readily biodegradable (by OECD criteria).

Bioaccumulative potential

Assessment bioaccumulation potential

The product has not been tested. The statement has been derived from the properties of the individual components.

Mobility in soil

Assessment transport between environmental compartments

The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: imazamox

The substance will not evaporate into the atmosphere from the water surface. Following exposure to soil, the product trickles away and can - dependant on degradation – be transported to deeper soil areas with larger water loads.

Additional information

Other ecotoxicological advice:

The ecological data given are those of the active ingredient. Do not release untreated into natural waters.



Section 13. Disposal considerations

Waste disposal of substance: Pesticide wastes are regulated. Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law. If pesticide wastes cannot be disposed of according to label instructions, contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container disposal: Rinse thoroughly at least three times (triple rinse) in accordance with EPA recommendations. Consult state or local disposal authorities for approved alternative procedures such as container recycling. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

RCRA: This product is not regulated by RCRA.

Section 14. Transport information

Land transport
USDOT Not classified as a dangerous good under transport regulations

Sea transport
IMDG Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO Not classified as a dangerous good under transport regulations

Section 15. Regulatory information

Federal Regulations

Registration status:

Chemical	TSCA, US	blocked / not listed
Crop Protection	TSCA, US	released / exempt

EPCRA 311/312 (Hazard categories): Refer to SDS section 2 for GHS hazard classes applicable for this product.

NFPA Hazard codes:
 Health: 1 Fire: 0 Reactivity: 0 Special:

Labeling requirements under FIFRA

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label.

CAUTION:
 HARMFUL IF ABSORBED THROUGH SKIN.
 HARMFUL IF INHALED.
 KEEP OUT OF REACH OF CHILDREN.
 KEEP OUT OF REACH OF DOMESTIC ANIMALS.



Avoid contact with the skin, eyes and clothing.

Section 16. Other information

SDS Prepared by:

SePRO Corporation

SDS Prepared on: 03/28/18

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SonarOne[®]

Aquatic Herbicide

SPECIMEN



AN HERBICIDE FOR MANAGEMENT OF AQUATIC VEGETATION IN FRESH WATER PONDS, LAKES, RESERVOIRS, POTABLE WATER SOURCES, DRAINAGE CANALS, IRRIGATION CANALS AND RIVERS.

Active Ingredient

fluridone: 1-methyl-3-phenyl-5-[3-(trifluoromethyl)phenyl]-4(1H)-pyridinone	5.0%
Other Ingredients	95.0%
TOTAL	100.0%

Contains 0.05 pound active ingredient per pound of product.

Keep Out of Reach of Children

CAUTION/PRECAUCIÓN

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

Refer to the inside of the label booklet for additional precautionary Statements and Directions for Use including Storage and Disposal.

NOTICE: Read the entire label before using. Use only according to label directions. Before buying or using this product, read *Warranty Disclaimer* and *Misuse* statements inside label booklet. If terms are unacceptable, return at once unopened.

SonarOne is a registered trademark of SePRO Corporation
SePRO Corporation
11550 N. Meridian Street, Suite 600 • Carmel, IN 46032, U.S.A.
EPA Reg. 67690-45 FPL20170208

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION. Harmful If Swallowed. Causes moderate eye irritation. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Avoid contact with eyes or clothing. Wear protective eyewear.

Keep Out of Reach of Children

CAUTION/PRECAUCIÓN

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

FIRST AID	
If swallowed	<ul style="list-style-type: none">• 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 in eyes	<ul style="list-style-type: none">• 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 on skin or clothing	<ul style="list-style-type: none">• 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.
If inhaled	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably mouth-to-mouth, if possible.• Call a poison control center or doctor for further treatment advice.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. In case of emergency endangering health or the environment involving this product, call INFOTRAC at 1-800-535-5053.	

ENVIRONMENTAL HAZARDS

Do not apply to water except as specified on the label. Do not contaminate water outside the intended treatment area by disposal of equipment washwaters. Do not apply in tidal saltwater. Lowest rates should be used in shallow areas where the water depth is considerably less than the average depth of the entire treatment site, for example, shallow shoreline areas. Trees and shrubs growing in water treated with this product may occasionally develop chlorosis. Follow use directions carefully so as to minimize adverse effects on non-target organisms.

DIRECTIONS FOR USE

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

Read all *Directions for Use* carefully before applying.

PRODUCT INFORMATION

SonarOne herbicide is a selective systemic aquatic herbicide for management of aquatic vegetation in fresh water ponds, lakes, reservoirs, drainage canals, irrigation canals, and rivers. This product is a pelleted formulation containing 5% fluridone. It is absorbed from water by plant shoots and from hydrosol in the roots of aquatic vascular plants. It is important to maintain this product in contact with the target plants for as long as possible. Rapid water movement or any condition which results in rapid dilution of this product in treated water will reduce its effectiveness. In susceptible plants, this product inhibits the formation of carotene. In the absence of carotene, chlorophyll is rapidly degraded by sunlight.

Herbicidal symptoms of SonarOne appear in 7 - 10 days and appear as white (chlorotic) or pink growing points. Under optimum conditions 30 - 90 days are required before the desired level of aquatic weed management is achieved. Species susceptibility to this product may vary depending on time of year, stage of growth and water movement. For best results, apply this product prior to initiation of weed growth or when weeds begin active growth. Application to mature target plants may require an application rate at the higher end of the specified rate range and may take longer to control.

SonarOne is not corrosive to application equipment.

This label provides recommendations on the use of a chemical analysis for the active ingredient. SePRO Corporation recommends the use of High-Performance Liquid Chromatography (HPLC) for the determination of the active ingredient concentration in the water. Contact SePRO Corporation to incorporate this test, known as a FasTEST, into your treatment program. Other proven chemical analyses for the active ingredient may also be used. The FasTEST is referenced in this label as the preferred method for the rapid determination of the concentration of the active ingredient in the water.

Application rates are provided in pounds of SonarOne to achieve a desired concentration of the active ingredient in part per billion (ppb). **The maximum application rate or sum of all application rates is 90 ppb in ponds and 150 ppb in lakes and reservoirs per annual growth cycle.** This maximum concentration is the amount of product calculated as the target application rate, NOT determined by testing the concentrations of the active ingredient in the treated water.

Use Restrictions

- **Obtain Required Permits:** Consult with appropriate state or local water authorities before applying this product to public waters. Permits and/or posting treatment notification may be required by state or local public agencies.
- **New York State:** Application of SonarOne is not permitted in waters less than two (2) feet deep, except as permitted under FIFRA Section 24(c), Special Local Need registration.
- **Hydroponic Farming:** Do not use water from a Sonar-treated area for hydroponic farming unless one of the following has been verified for the relevant active water intake and its withdrawal of surface water:
 - o A FasTEST has been run and the concentration in water at the intake is less than 1 ppb; or
 - o A filtration or water treatment process following water intake has been verified analytically to reduce the concentration in potential irrigation water below 1 ppb.
- **Greenhouse and Nursery Plants:** Do not use water from a Sonar-treated area for greenhouse and nursery irrigation unless one of the following has been verified for the relevant active water intake and its withdrawal of surface water:
 - o For the irrigation of woody ornamental plants, a FasTEST has been run and the concentration at the intake is less than 5 ppb; or
 - o For the irrigation of other greenhouse or nursery plants, the concentration is confirmed less than 1 ppb; or

o A filtration or water treatment process following water intake has been verified analytically to reduce the concentration in potential irrigation water below either the 1 or 5 ppb levels cited above.

• **Water Use Restrictions Following Application with SonarOne (Days)**

Application Rate	Drinking†	Fishing	Swimming	Livestock/Pet Consumption	Irrigation††
Maximum Rate (150 ppb) or less	0	0	0	0	See irrigation instructions below

† Note below, under *Potable Water Intakes*, the information for application of this product within ¼ miles (1,320) feet of a functioning potable water intake.

†† Note below, under *Irrigation*, specific time frames or fluridone concentrations that provide the widest safety margin for irrigating with fluridone treated water.

- **Potable Water Intakes:** Concentrations of the active ingredient fluridone up to 150 ppb are allowed in potable water sources; however, in lakes and reservoirs or other sources of potable water, **do not apply** this product at application rates greater than 20 ppb within one-fourth (1/4) mile (1,320 feet) of any functioning potable water intake. At application rates of 8 - 20 ppb, this product **may be applied** within ¼ mile where functioning potable water intakes are present. **NOTE:** Existing potable water intakes which are no longer in use, such as those replaced by connections to potable water wells or a municipal water system, are not considered to be functioning potable water intakes.

Use Precautions

- **Irrigation:** Irrigation with treated water may result in injury to the irrigated vegetation. Follow these precautions and inform those who irrigate from areas treated with SonarOne of the irrigation time frames or water FasTEST requirements presented in the table below. Follow the following time frames and FasTEST directions to reduce the potential for injury to vegetation irrigated with treated water. Greater potential for crop injury occurs where treated water is applied to crops grown on low organic and sandy soils.

Application Site	Days After Application		
	Established Tree Crops	Established Row Crops/ Turf/Plants	Newly Seeded Crops/Seedbeds or Areas to be Planted Including Overseeded Golf Course Greens
Ponds and Static Canals†	7	30	FasTEST required
Canals	7	7	FasTEST required
Rivers	7	7	FasTEST required
Lakes and Reservoirs††	7	7	FasTEST required

† For purposes of SonarOne labeling, a pond is defined as a body of water 10 acres or less in size. A lake or reservoir is greater than 10 acres.

†† In lakes and reservoirs where one-half or greater of the body of water is treated, use the pond and static canal irrigation precautions.

Where the use of SonarOne treated water is desired for irrigating crops prior to the time frames established above, use the FasTEST to measure the concentration in the treated water. Where a FasTEST has determined that concentrations are less than 10 parts per billion, there are no irrigation precautions for irrigating established tree crops, established row crops or turf. **For tobacco, tomatoes, peppers or other plants within the Solanaceae Family and newly seeded crops or newly seeded grasses such as overseeded golf course greens, do not use treated water if concentrations are greater than 5 ppb; furthermore, when rotating crops, do not plant members of the Solanaceae family in land that has been previously irrigated with fluridone concentrations in excess of 5 ppb. It is recommended that a SePRO Aquatic Specialist be consulted prior to commencing irrigation of these sites.**

PLANT CONTROL INFORMATION

SonarOne selectivity is dependent upon dosage, time of year, stage of growth, method of application, and water movement. The following categories: controlled, partially controlled, and not controlled, are provided to describe expected efficacy under ideal treatment conditions using higher to maximum label rates. Use of lower rates will increase selectivity of some species listed as controlled or partially controlled. Additional aquatic plants may be controlled, partially controlled, or tolerant to this product. It is recommended to consult a SePRO Aquatic Specialist prior to application of

this product to determine a plant's susceptibility to SonarOne. **NOTE: algae (chara, nitella, and filamentous species) are not controlled by SonarOne.**

Vascular Aquatic Plants Controlled By SonarOne:¹

Submersed Plants:

- bladderwort (*Utricularia* spp.)
- common coontail (*Ceratophyllum demersum*)†
- common Elodea (*Elodea canadensis*)†
- egeria, Brazilian Elodea (*Egeria densa*)
- fanwort, Cabomba (*Cabomba caroliniana*)
- hydrilla (*Hydrilla verticillata*)
- naiad (*Najas* spp.) †
- pondweed (*Potamogeton* spp., except Illinois pondweed)†
- watermilfoil (*Myriophyllum* spp. except variable-leaf milfoil)

Floating Plants:

- salvinia (*Salvinia* spp.)
- duckweed (*Lemna*†, *Spirodela*†, and *Landoltia* spp.)
- mosquito fern (*Azolla caroliniana*)†

Shoreline Grasses:

- paragrass (*Urochloa mutica*)

¹ Species denoted by a dagger (†) are native plants that are often tolerant to fluridone at lower use rates. Please consult a SePRO Aquatic Specialist for recommended SonarOne use rates (not to exceed maximum labeled rates) when selective control of exotic species is desired.

Vascular Aquatic Plants Partially Controlled By SonarOne:

Submersed Plants:

- Illinois pondweed (*Potamogeton illinoensis*)
- limnophila (*Limnophila sessiliflora*)
- tapegrass, American eelgrass (*Vallisneria americana*)
- watermilfoil--variable-leaf (*Myriophyllum heterophyllum*)

Emersed Plants:

- alligatorweed (*Alternanthera philoxeroides*)
- American lotus (*Nelumbo lutea*)
- cattail (*Typha* spp.)
- creeping waterprimrose (*Ludwigia peploides*)
- parrotfeather (*Myriophyllum aquaticum*)
- smartweed (*Polygonum* spp.)
- spatterdock (*Nuphar luteum*)
- spikerush (*Eleocharis* spp.)
- waterlily (*Nymphaea* spp.)
- waterpurslane (*Ludwigia palustris*)
- watershield (*Brasenia schreberi*)

Shoreline Grasses:

- barnyardgrass (*Echinochloa crusgalli*)
- giant cutgrass (*Zizaniopsis miliacea*)
- reed canarygrass (*Phalaris arundinaceae*)
- southern watergrass (*Hydrochloa carolinensis*)
- torpedograss (*Panicum repens*)

Vascular Aquatic Plants Not Controlled By SonarOne:

Emersed Plants:

- American frogbit (*Limnobium spongia*)
- arrowhead (*Sagittaria* spp.)
- bacopa (*Bacopa* spp.)
- big floatingheart, banana lily (*Nymphoides aquatica*)
- bulrush (*Scirpus* spp.)
- pickerelweed, lanceleaf (*Pontederia* spp.)
- rush (*Juncus* spp.)
- water pennywort (*Hydrocotyle* spp.)

Floating Plants:

- floating waterhyacinth (*Eichhornia crassipes*)
- waterlettuce (*Pistia stratiotes*)

Shoreline Grasses:

- maidencane (*Panicum hemitomon*)

NOTE: Algae (chara, nitella, and filamentous species) are not controlled by SonarOne.

APPLICATION DIRECTIONS

The aquatic plants present in the treatment site should be identified prior to application to determine their susceptibility to SonarOne. It is important to determine the area (acres) to be treated and the average depth in order to select the proper application rate. Do not exceed the maximum labeled rate for a given treatment site per annual growth cycle.

Application to Ponds

SonarOne may be applied to the entire surface area of a pond. For single applications, rates may be selected to provide 30 - 90 ppb to the treated water, although actual concentrations in treated water may be substantially lower at any point in time due to the slow-release formulation of this product. When treating for optimum selective control, lower rates may be applied for sensitive target species. Use the higher rate within the rate range where there is a dense weed mass, when treating more difficult to control species, and for ponds less than 5 acres in size with an average depth less than 4 feet. Application rates necessary to obtain these concentrations in treated water are shown in the following table. For additional application rate calculations, refer to the *Application Rate Calculation—Ponds, Lakes and Reservoirs* section of this label. Split or multiple applications may be used where dilution of treated water is anticipated; however, the sum of all applications should total 30 - 90 ppb and must not exceed a total of 90 ppb per annual growth cycle.

Average Water Depth of Treatment Site (feet)	Pounds of SonarOne per Treated Surface Acre	
	45 ppb	90 ppb
1	2.5	5.0
2	5.0	10.0
3	7.5	15.0
4	10.0	20.0
5	12.5	25.0
6	15.0	30.0
7	17.0	34.0
8	19.5	39.0
9	22.0	44.0
10	24.5	49.0

Application to Lakes and Reservoirs

The following treatments may be used for treating both whole lakes or reservoirs and partial areas of lakes or reservoirs (bays, etc.). For best results in treating partial lakes and reservoirs, SonarOne treatment areas should be a minimum of 5 acres in size. Treatment of areas smaller than 5 acres or treatment of narrow strips such as boat lanes or shorelines may not produce satisfactory results due to dilution by untreated water. Rate ranges are provided as a guide to include a wide range of environmental factors, such as target species, plant susceptibility, selectivity and other aquatic plant management objectives. Application rates and methods should be selected to meet the specific lake/reservoir aquatic plant management goals.

NOTE: In treating lakes or reservoirs that contain potable water intakes and where the application requires treating within one-fourth (¼) mile of a potable water intake, no single application can exceed 20 ppb. Additionally, the sum of all applications cannot exceed 150 ppb per annual growth cycle.

A. Whole Lake or Reservoir Treatments (Limited or No Water Discharge)

Single Application to Whole Lakes or Reservoirs

Where single applications to whole lakes or reservoirs are desired, apply SonarOne at an application rate of 16 - 90 ppb. Application rates necessary to obtain these concentrations in treated water are shown in the following table. For additional application rate calculations, refer to the *Application Rate Calculation—Ponds, Lakes and Reservoirs* section of this label. Choose an application rate from the table below to meet the aquatic plant management objective. **Where greater plant selectivity is desired such as when controlling Eurasian watermilfoil and curlyleaf pondweed, choose an application rate lower in the rate range.** For other plant species, SePRO recommends contacting a SePRO Aquatic Specialist in determining when to choose application rates lower in the rate range to meet specific plant management goals. Use the higher rate within the rate range where there is a dense weed mass or when treating more difficult to control plant species or in the event of a heavy rainfall event where dilution has occurred. In these cases, a second application or more may be required; however, the sum of all applications cannot exceed 150 ppb per annual growth cycle. Refer to the section of this label entitled, *Split or Multiple Applications to Whole Lakes or Reservoirs*, for guidelines and maximum rate allowed.

Average Water Depth of Treatment Site (feet)	Pounds of SonarOne Per Treated Surface Acre	
	16 ppb	90 ppb
1	0.9	5.0
2	1.7	10.0
3	2.6	15.0
4	3.5	20.0
5	4.3	25.0
6	5.2	30.0
7	6.0	34.0
8	6.9	39.0
9	7.8	44.0
10	8.6	49.0
11	9.5	54.0
12	10.4	59.0
13	11.2	64.0
14	12.1	68.0
15	13.0	73.0
16	13.8	78.0
17	14.7	83.0
18	15.6	88.0
19	16.4	93.0
20	17.3	98.0

Split or Multiple Applications to Whole Lakes or Reservoirs

To meet certain plant management objectives, split or multiple applications may be desired in making whole lake treatments. Split or multiple application programs are desirable when the objective is to use the minimum effective dose and to maintain this lower dose for the sufficient time to ensure efficacy and enhance selectivity. Under these situations, use the lower rates (16 - 75 ppb) within the rate range. **In controlling Eurasian watermilfoil and curlyleaf pondweed and where greater plant selectivity is desired, choose an application rate lower in the rate range.** For other plant species, SePRO recommends contacting a SePRO Aquatic Specialist in determining when to choose application rates lower in the rate range to meet specific plant management goals. For split or repeated applications, the sum of all applications must not exceed 150 ppb per annual growth cycle.

B. Partial Lake or Reservoir Treatments

Where dilution of SonarOne with untreated water is anticipated, such as in partial lake or reservoir treatments, split or multiple applications may be used to extend the contact time to the target plants. The application rate and use frequency of this product in a partial lake is highly dependent upon the treatment area. An application rate at the higher end of the specified rate range may be required and frequency of applications will vary depending upon the potential of untreated water diluting the product concentration in the treatment area. Use a rate at the higher end of the rate range where greater dilution with untreated water is anticipated.

Application Sites Greater Than ¼ Mile from a Functioning Potable Water Intake

For single applications, apply SonarOne at application rates from 45 - 150 ppb. Split or multiple applications may be made; however, the sum of all applications cannot exceed 150 ppb per annual growth cycle. Split applications should be conducted to maintain a sufficient concentration in the target area for a period of 45 days or longer. The use of a FastEST is recommended to maintain the desired concentration in the target area over time.

Application Sites within ¼ Mile of a Functioning Potable Water Intake

In treatment areas that are within ¼ mile of a potable water intake, no single application can exceed 20 ppb. When utilizing split or repeated applications of SonarOne for sites which contain a potable water intake, a FastEST is required to determine the actual concentration in the water. Additionally, the sum of all applications cannot exceed 150 ppb per annual growth cycle.

Application Rate Calculation — Ponds, Lakes and Reservoirs

The amount of SonarOne to be applied to provide the desired ppb concentration of active ingredient equivalents in treated water may be calculated as follows:

$$\text{Pounds of SonarOne required per treated acre} = \text{Average water depth of treatment site} \times \text{Desired ppb concentration of active ingredient equivalents} \times 0.054$$

For example, the pounds per acre of SonarOne required to provide a concentration of 25 ppb of active ingredient equivalents in water with an average depth of 5 feet is calculated as follows:

$$5 \times 25 \times 0.054 = 6.75 \text{ pounds per treated surface acre.}$$

NOTE: Calculated rates may not exceed the maximum allowable rate in pounds per treated surface acre for the water depth listed in the application rate table for the site to be treated.

Application to Drainage Canals, Irrigation Canals and Rivers

Static Canals

In static drainage and irrigation canals, apply SonarOne at the rate of 20 - 40 pounds per surface acre.

Moving Water Canals and Rivers

The performance of SonarOne will be enhanced by restricting or reducing water flow. In slow moving bodies of water use an application technique that maintains a concentration of 10 - 40 ppb in the applied area for a minimum of 45 days. This product can be applied by split or multiple broadcast applications or by metering in the product to provide a uniform concentration of the herbicide based upon the flow pattern. The use of a FasTEST is recommended to maintain the desired concentration in the target area over time.

Static or Moving Water Canals or Rivers Containing a Functioning Potable Water Intake

In treating a static or moving water canal or river which contains a functioning potable water intake, applications of SonarOne greater than 20 ppb must be made more than ¼ mile from a functioning potable water intake. Applications less than 20 ppb may be applied within ¼ mile from a functioning potable water intake; however, if applications of this product are made within ¼ mile from a functioning water intake, a FasTEST must be utilized to demonstrate that concentrations do not exceed 150 ppb at the potable water intake.

Application Rate Calculation — Drainage Canals, Irrigation Canals and Rivers

The amount of SonarOne to be applied through a metering system to provide the desired ppb concentration of active ingredient in treated water may be calculated as follows:

1. Average flow rate (ft. per second) x average width (ft.) x average depth (ft.) x 0.9 = CFS (cubic feet per second)
2. CFS x 1.98 = acre feet per day (water movement)
3. Acre feet per day x desired ppb x 0.054 = pounds SonarOne required per day.

STORAGE AND DISPOSAL

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

Pesticide Storage: Store in original container only. Do not store near feed or foodstuffs. In case of leak or spill, contain material and dispose as waste.

Pesticide Disposal: Wastes resulting from use of this product may be used according to label directions or disposed of at an approved waste disposal facility.

Container Handling:

Non-refillable, rigid container. DO NOT reuse or refill this container.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Triple rinse containers small enough to shake as follows: Empty the remaining contents into application equipment or a mix tank. 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 two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or mix tank. 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.

Non-refillable, non-rigid container. DO NOT reuse or refill this container. Completely empty liner into application equipment by shaking and tapping sides and bottom to loosen clinging particles. If not emptied in this manner, the bag may be considered an acute hazardous waste and must be disposed of in accordance with local, state and federal regulations. When completely empty, offer for recycling if available or dispose of in a sanitary landfill or by incineration or if allowed by state and local authorities, by burning. If burned, stay out of smoke. If outer packaging is contaminated and cannot be reused, dispose of it in the manner required for its liner.

Warranty Disclaimer: SePRO Corporation warrants that this product conforms to the chemical description on the product label. Testing and research have also determined that this product is reasonably fit for the uses described on the product label. To the extent consistent with applicable law, SePRO Corporation makes no other express or implied warranty of fitness or merchantability nor any other express or implied warranty and any such warranties are expressly disclaimed.

Misuse: Federal law prohibits the use of this product in a manner inconsistent with its label directions. To the extent consistent with applicable law, the buyer assumes responsibility for any adverse consequences if this product is not used according to its label directions. In no case shall SePRO Corporation be liable for any losses or damages resulting from the use, handling or application of this product in a manner inconsistent with its label.

For additional important labeling information regarding SePRO Corporation's Terms and Conditions of Use, Inherent Risks of Use and Limitation of Remedies, please visit <http://www.seprolabels.com/terms/> or scan the image below.



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SePRO Corporation
11550 North Meridian Street, Suite 600
Carmel, IN 46032, U.S.A.



SAFETY DATA SHEET

SonarOne® Aquatic Herbicide

Section 1. Identification

GHS product identifier : SonarOne® Aquatic Herbicide

Other means of identification : Not available.

EPA Registration No. : 67690-45

Relevant identified uses of the substance or mixture

Aquatic herbicide.

Supplier's details : SePRO Corporation
11550 North Meridian Street
Suite 600
Carmel, IN 46032 U.S.A.
Tel: 317-580-8282
Toll free: 1-800-419-7779
Fax: 317-580-8290
Monday - Friday, 8am to 5pm E.S.T.
www.sepro.com

Emergency telephone number (with hours of operation) : **INFOTRAC - 24-hour service 1-800-535-5053**

The following recommendations for exposure controls and personal protection are intended for the manufacture, formulation and packaging of this product. For applications and/or use, consult the product label. The label directions supersede the text of this Safety Data Sheet for application and/or use.

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : EYE IRRITATION - Category 2B
AQUATIC HAZARD (ACUTE) - Category 3
AQUATIC HAZARD (LONG-TERM) - Category 3

GHS label elements

Signal word : Warning

Hazard statements : H320 - Causes eye irritation.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention : P273 - Avoid accidental release to the environment.
P264 - Wash hands thoroughly after handling.

Response : P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 - If eye irritation persists: Get medical attention.

Storage : Not applicable.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.





Section 2. Hazards identification

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture
Other means of identification : Not available.

Ingredient name	%	CAS number
Proprietary ingredient 3	40 - 60	-
Proprietary ingredient 4	20 - 40	-
Proprietary ingredient 1	10 - 20	-
Fluridone	5	59756-60-4
Proprietary ingredient 2	1 - 5	-

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. If irritation persists, get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Flush contaminated skin with plenty of water. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.



Section 4. First aid measures

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
halogenated compounds

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Section 6. Accidental release measures

- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). May be harmful to the environment if accidentally released in large quantities.

Methods and materials for containment and cleaning up

- Spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid accidental release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Fluridone	None.

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Section 8. Exposure controls/personal protection

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Solid. [Pellets.]
- Color** : Brown to gray.
- Odor** : Faint earthy/musty.
- Odor threshold** : Not available.
- pH** : 7.8 [Conc. (% w/w): 31%]
- Melting point** : Not available.
- Boiling point** : Not available.
- Flash point** : Not applicable.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Relative density** : 1.02 at 20°C
- Solubility** : Not available.
- Solubility in water** : Insoluble. Pellet disintegrates in water.
- Partition coefficient: n-octanol/water** : Not available.

Section 9. Physical and chemical properties

Auto-ignition temperature : Not available.
Decomposition temperature : Not available.
Viscosity : Not available.
Flow time (ISO 2431) : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.
Chemical stability : The product is stable.
Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid : No specific data.
Incompatible materials : Reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
SonarOne® Aquatic Herbicide	LD50 Dermal LD50 Oral	Rabbit Rat	>2000 mg/kg >5000 mg/kg	- -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
SonarOne® Aquatic Herbicide	Eyes - Mild irritant	Rabbit	-	-	-

There is no data available.

Sensitization

Product/ingredient name	Route of exposure	Species	Result
SonarOne® Aquatic Herbicide	skin	Guinea pig	Not sensitizing

Mutagenicity

Conclusion/Summary : Based on active ingredients: no known evidence.

Carcinogenicity

Conclusion/Summary : Based on active ingredients: no known evidence.

Reproductive toxicity

Conclusion/Summary : Based on active ingredients: no known evidence.

Teratogenicity

There is no data available.

Section 11. Toxicological information

Neurotoxicity

Conclusion/Summary : Based on active ingredients: no known evidence.

Immunotoxicity

Conclusion/Summary : Based on active ingredients: no known evidence.

Specific target organ toxicity (single exposure)

There is no data available.

Specific target organ toxicity (repeated exposure)

There is no data available.

Aspiration hazard

There is no data available.

Information on the likely routes of exposure : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eye contact : Causes eye irritation.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : No known significant effects or critical hazards.
Potential delayed effects : No known significant effects or critical hazards.

Long term exposure

Potential immediate effects : No known significant effects or critical hazards.
Potential delayed effects : No known significant effects or critical hazards.

Potential chronic health effects

General : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Section 11. Toxicological information

Numerical measures of toxicity

Acute toxicity estimates

There is no data available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Fluridone	EC50 3 mg/L	Daphnia - <i>Daphnia magna</i>	48 hours
	LC50 8 mg/L	Crustaceans - <i>Eucyclops sp.</i>	48 hours
	LC50 >5.2 mg/L	Fish - <i>Cyprinodon variegatus</i>	96 hours
	LC50 >6.5 mg/L	Fish - <i>Pimephales promelas</i>	96 hours
	Chronic NOEC 0.84 mg/L	Daphnia - <i>Daphnia magna</i>	21 days
	Chronic NOEC 0.43 mg/L	Fish - <i>Oncorhynchus tshawytscha</i>	75 days

Persistence and degradability

There is no data available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Fluridone	3.16	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**Section 14. Transport information**

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.

AERG : Not applicable.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined
 United States inventory (TSCA 8b): All components are listed or exempted.

Clean Air Act Section 112 : Not listed
 (b) Hazardous Air Pollutants (HAPs)

Clean Air Act Section 602 : Not listed
 Class I Substances

Clean Air Act Section 602 : Not listed
 Class II Substances

DEA List I Chemicals : Not listed
 (Precursor Chemicals)

DEA List II Chemicals : Not listed
 (Essential Chemicals)

SARA 302/304**Composition/information on ingredients**

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Immediate (acute) health hazard



Section 15. Regulatory information

Composition/information on ingredients

Name	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Fluridone	No.	No.	No.	Yes.	No.

SARA 313

There is no data available.

State regulations

- Massachusetts** : None of the components are listed.
New York : None of the components are listed.
New Jersey : The following components are listed: Proprietary ingredient 3
Pennsylvania : The following components are listed: Proprietary ingredient 3

California Prop. 65

No products were found.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
EYE IRRITATION - Category 2B AQUATIC HAZARD (ACUTE) - Category 3 AQUATIC HAZARD (LONG-TERM) - Category 3	On basis of test data Calculation method Calculation method

History

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