
SPILL PREVENTION AND RESPONSE PLAN

Tahoe Keys Property Owners Association Tahoe Keys Lagoons Aquatic Weed Control Methods Test



PREPARED BY:



STRATUS ENGINEERING ASSOCIATES LLC

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MAY 2022

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1. FACILITY INFORMATION

<i>Project Name</i>	Tahoe Keys Property Owners Association Tahoe Keys Lagoons Aquatic Weed Control Methods Test (CMT)
<i>Facility Location</i>	Tahoe Keys 356 Ala Wai Blvd, South Lake Tahoe, CA 96150
<i>Facility Operator/Owner</i>	Tahoe Keys Property Owners Association 356 Ala Wai Blvd, South Lake Tahoe, CA 96150
<i>Contact Information</i>	Kirk J. Wooldridge PCAM®, AMS®, CMCA®, CCAM®, CHA®, General Manager Tahoe Keys Property Owners Association 356 Ala Wai Boulevard, South Lake Tahoe CA 96150 530-542-6444 Extension: 224 530-541-2521 FAX kwooldridge@tahoekeyspoa.org



2. INTRODUCTION AND PURPOSE

The Tahoe Keys Property Owners Association (TKPOA) has consulted with various agencies and other stakeholders to design and test the use of Federal and California Environmental Protection Agency (EPA) approved chemical control methods to manage the aquatic weed problem within the water in the Tahoe Keys West Lagoon and Lake Tallac, South Lake Tahoe, California, and meet the objectives of its Waste Discharge Requirements (WDRs). The Control Methods Test Project (CMT) was developed by collaborative stakeholders and TKPOA to address these issues. The CMT will test standalone as well as combination types of treatments in select test sites within the Tahoe Keys Lagoon using herbicides, ultraviolet (UV-C) light, and Laminar Flow Aeration (LFA) as a means of managing the aquatic weed problem. At the direction of Lahontan Regional Water Quality Control Board (Water Board), this Spill Prevention and Response Plan (Plan) was developed for use during the CMT in the Tahoe Keys. This Plan will be used to prevent and/or respond to spills of substances containing active herbicide chemicals in locations not expressly permitted by the Water Board through their Order No. R6T-2022-0004 NPDES NO. CA6202201 WDID NO.6A091701001).

3. EMERGENCY NOTIFICATION AND AGENCY CONTACTS

CMT PROJECT CONTACTS

Primary

Name:	Rick Lind	Office Number: 530-622-8740
Title:	Project Manager	Cell Number: 530-400-0850

Secondary

Name:	Dr. Lars Anderson	
Title:	Monitoring/Technical Direction and Oversight	Cell Number: 916-715-7686

Additional

Name:	Kirk Wooldridge	Office Number: 530-542-6444
Title:	TKPOA General Manager	

Additional

Name:	Dennis Zabaglo	Cell Number: 530-545-1370
Title:	TRPA Aquatic Resources Program Manager	Office Number: 775-589-5255

Additional

Name:	Steve Sweet	Cell Number: 775-220-4607
Title:	TRPA Code Compliance Program Manager	Office Number: 775-589-5250



SPILL RESPONSE CONTRACTORS

Liquid/Granular Spill in Water During CMT

Contractor:	Stratus Engineering Associates LLC	Office Number: 530-651-4200
Contact:	Rob Kull	Cell Number: 530-672-4017

Liquid/Granular Spill in Vessel

Contractor:	Aqua Technex	Office Number: 360-527-1271
Contact:	Terry McNabb	Cell Number: 360-201-4017

Liquid/Granular Spill on Land

Contractor:	Stratus Engineering Associates LLC	Office Number: 530-651-4200
Contact:	Rob Kull	Cell Number: 530-672-4017

ADDITIONAL

Name:	Dennis Zabaglo	Cell Number: 530-545-1370
Title:	TRPA Aquatic Resources Program Manager	Office Number: 775-589-5255

ADDITIONAL

Name:	Steve Sweet	Cell Number: 775-220-4607
Title:	TRPA Code Compliance Program Manager	Office Number: 775-589-250

AGENCY CONTACTS

California Office of Emergency Services	800-852-7550
Lahontan Regional Water Quality Control Board	530-542-5400
Lahontan Water Board Executive Officer, Mike Plaziak	530-542-5412
United States Coast Guard	800-323-7233
Department of Fish and Game (impacts to water body)	916-385-2900
El Dorado County Environmental Management (CUPA)	530-621-5300
Fire Department (City of South Lake Tahoe) or 911	530-542-6160
Police Department (City of South Lake Tahoe) or 911	530-542-6100
Tahoe Regional Planning Agency	775-588-4547
California Department of Public Health	916-558-1784
South Tahoe Public Utility District (STPUD)	530-544-6474



4. MANAGEMENT APPROVAL

This Plan discusses spill prevention and best management practices, spill response, and oversight of the CMT. This Plan has been compiled, reviewed and certified by a professional civil engineer (third party) licensed in the state of California. A copy of this Plan will be maintained at the TKPOA and Contractor offices, reviewed and followed by the TKPOA contractor(s) retained to apply herbicide chemicals and respond to spills, and made available upon request for on-site review by regulatory agencies.

The TKPOA is committed to protecting public health and the environment and maintains the highest standards for spill prevention and response through implementation of the approved Aquatic Pesticides Application Plan (APAP), and regular review, updates, and implementation of this Plan, as required. This Plan has the full approval of management at a level of authority necessary to commit the required resources to fully implement the Plan.

Kirk J. Wooldridge PCAM®, AMS®, CMCA®, CCAM®, CHA®, General Manager

Signature _____

Date _____

Plan Distribution

Copies of the Plan are kept on file by the TKPOA:

- Office, 356 Ala Wai Blvd, South Lake Tahoe, CA 96150
- <https://www.keysweedsmanagement.org/blog/aquatic-pesticide-application-plan-apap-amendment-1-for-the-control-methods>

5. SPILL PREVENTION RESPONSE ROLES AND RESPONSIBILITIES

Oversight of the chemical application activities will be conducted by an Environmental Program Manager (EPM) with 40-hour HAZWOPER training certification per 29 CFR 1910.120 and 29 CFR 1926.65. The EPM must be familiar with spill prevention and response to ensure the procedures outlined in this Plan are adhered to, and to document a spill should one occur. The EPM must be familiar with the requirements of Order No. R6T-2022-0004, NPDES Permit No. CA6202201 (Order) and comply with the conditions of the Order as necessary. The EPM will provide written and photo documentation of daily field and spill response activities. See Appendix A for the Daily Field Report and the Spill Report Form.

The EPM will be responsible for holding a daily operations meeting to ensure all personnel involved in the chemical application process are educated on the CMT activities to be conducted and the associated spill prevention and response measures as outlined in this Plan. The EPM will observe spill prevention and best management practices during CMT activities outlined in Section 6 of the Plan. The EPM has the authority, in conjunction with the CMT Project Team (Section 3 of the Plan), to pause or halt CMT activities should conditions arise that the EPM determines has the potential to cause a spill on land, on board the application vessel, or within the water of the



Tahoe Keys Lagoons. All parties involved in the CMT activities have the authority to stop work if unsafe conditions are observed.

The EPM will be responsible for oversight of spill response for each of the scenarios provided below:

5.1. Spill Prevention and Response on Land Conveyance

The EPM will be responsible for spill response activities should a spill occur on land and will provide spill response and best management practice (BMP) materials. The EPM will ensure the spill has been mitigated and that all used/spent spill response materials and BMPs are properly disposed in accordance with Local, State, and Federal requirements. Spill response activities for spills on land are described in Section 7.2 of this Plan.

5.2. Spill Prevention and Response on Application Vessel

The EPM will be responsible for providing oversight should a spill occur within the application vessel. The EPM will ensure that spill response and BMP materials are provided by the contractor selected to apply the chemicals (Applicator) and maintained on the application vessel before the vessel leaves the dock, that the spill has been properly mitigated by the Applicator, and that the used/spent spill response material/BMPs are properly contained and disposed. Spill response for spills on the application vessel are described in Section 7.3 of this Plan.

5.3. Spill Prevention and Response on Water

The EPM will be responsible for oversight of the Spill Response Contractor and the operation of their Herbicide Spill Response System. The Spill Response Contractor will be responsible for providing and deploying the spill response equipment, removing the spill, containing the extracted water, and transporting and disposing the water. The EPM will be responsible for inspecting the Herbicide Spill Response System prior to CMT activities and providing oversight during CMT activities to observe for potential leaks. The Spill Response Contractor will be responsible for proper waste disposal and providing the waste manifests/disposal documentation to the EPM. Spill response for spills in the water are described in Sections 7.4 and 7.5 of this Plan.

6. SPILL PREVENTION AND BEST MANAGEMENT PRACTICES

The following spill prevention measures and BMPs evaluated below should be implemented to avoid a spill during CMT activities.

6.1. CMT Chemicals Used

The following chemicals will be used during the CMT. Only the chemicals containing active herbicides, require implementation of spill response measures should a release to land or water occur.

- Endothall (Aquathol K® or Cascade®) – Liquid products containing identical active ingredient herbicide
- Triclopyr (Renovate-3®) – Liquid product containing active herbicide



- Triclopyr (Renovate-OTF®) – Granular product containing active herbicide
- Rhodamine Water Tracer Aquatic Dye (RWT) – Dye with Rhodamine as 20% of the active ingredients
- Phoslock – Contingent Action (elevated phosphorus levels):
 - o Aqueous blend of phosphate binding materials

Liquid chemicals will be applied through weighted hoses to the bottom of the test sites. The liquid chemical will be poured from the manufacturer's container into the liquid applicator mixing tank situated on the application vessel where they are diluted to the appropriate concentrations as specified in the APAP. An alternative application method may be used in which the herbicide chemical is pumped from the manufacturer's container into the in-line injection system and mixed with water as it is injected into the test sites. Granular herbicide chemicals will be placed into the hopper of the spreader applicator situated on the application vessel.

6.2. CMT Preparation

Contractor Qualifications

The Applicator will meet the following required qualifications:

- Applicator and Applicator staff must be certified applicators and must provide their California Aquatic Pesticide Certification (QAL) license number and current validation.
- Record of continuing education units (CEUs) for the past 5 years.
- Examples and references for recent (last 3 years) and historic (past 10 years) experience implementing aquatic herbicide chemical applications.
- Possession of California Boater Card or equivalent (if Contractor plans to provide vessel / operate vessel).
- Experience applying products specified for this scope.

The Applicator will provide the following information:

- Description and age of applicator vessel, including hull construction, length, beam, power, use, and safety equipment.
- Descriptions and conditions of on-board GPS and depth-recording instrumentation used on application vessel(s).
- Methods/protocols used to calibrate herbicide application equipment to ensure that the final concentrations are correct.

The Applicator and supervised staff will comply with all applicable directions, limitations, conditions, application methods and equipment, PPE and all other safety and environmental protection, disposal and containment requirements stated in the respective label for all chemicals specified (see Appendix B for Safety Data Sheets). The Applicator will review the label, application schedule and application logistics to ensure compliance with all labelling. The Applicator will take



great care in handling the chemicals as to not create a spill on to land, within the water, or within the application vessel.

6.3. Application Vessel Preparation

The test sites where chemicals are applied will be separated from the main part of the lagoon using several strategically located double barrier turbidity curtains, which will be installed before CMT activities begin (see Figure 1 for locations of double barrier turbidity curtains).

Chemicals to be used during CMT activities will be brought to the Staging Area (See Figure 2 for location of the Staging Area). Chemicals will either be transferred directly from the delivery vehicle to the Applicator's vehicle or placed in secondary containment. The Applicator may carry enough chemical in their vehicle to treat three replicate test sites at a time. The Applicator will convey all chemicals in secondary containment in the manufacturer's sealed containers to the boat ramp location closest to the test site where chemicals will be applied (see Figure 2). Loading of chemicals onto the application vessel must be done behind the double turbidity curtains. Chemicals will be loaded from the boat ramp and into secondary containment on the application vessel. All secondary containment structures will be sized to hold the contents of the largest single chemical container. The largest containers of herbicide are 2.5 gallons of liquid herbicide chemical or 40 pounds of granular herbicide chemical. Only the chemical quantity for up to three test sites to achieve targeted final concentration will be loaded on the application vessel.

The entire application system (including pumps, valves, and hoses) will be tested for integrity by the Applicator under operating pressures before any chemical is loaded for application. All equipment will be calibrated by the Applicator using standard, accepted methods to ensure that the correct amount of herbicide is properly applied to each test site. Calibration medium used will be clean water for liquid applicators and blank, inert pellets for granular applicators.

If necessary, proper off-site washdown of the application vessel will be completed following treatment applications, and if necessary, the Applicator will ensure any chemical contaminated water in the vessel is properly removed, stored, and disposed of in accordance with the product labeling and Local, State, and Federal requirements.

6.4. Chemical Herbicide Application

The application vessel will be driven to the test site where the liquid chemical will either be poured or pumped into the mixing tank with water or pumped directly into the in-line injection system and applied through a weighted hose. Granular chemicals will be loaded into a spreader hopper which applies the chemical to the surface water within the test site and allowed to sink to the lagoon floor.

Herbicide chemicals will be applied to the test sites in quantities necessary to achieve the target concentrations outlined in the APAP. Fluorescent dye, RWT, will be injected with the liquid herbicides in the mixing tank, or applied separately immediately after application of granular herbicide to monitor the movement of the herbicide chemicals in the water.



In the event of elevated phosphorus within the test sites after application of chemical herbicides, Phoslock will be used to reduce phosphorus levels. Phosphate concentrations within the test sites will be determined by laboratory testing post CMT herbicide chemical application. Phoslock may be applied to the test site as a liquid slurry through a weighted hose or as a granular material through a spreader to the water's surface and allowed to sink to the lagoon floor. Spill prevention and response is not required for the use of Phoslock.

6.5. Test Site Contamination Prevention

Upon completion of application for a given herbicide, the pumping/hoses system will be flushed within the test site using clean water and will be removed from the water prior to movement out of a treated area.

7. SPILL RESPONSE

The following procedures will be followed in the event of an unplanned release of chemical herbicide to land, water, or within the application vessel. Following the cleanup of a spill, a Spill Report Form (Appendix A) will be completed.

7.1. Definition of a Spill

For the purposes of this Plan, any unplanned release of chemicals containing herbicide constitutes a spill. Spill response procedures will vary depending on the type and location of the spill.

7.2. Spill on Land

Spill Scenarios

A spill on land would most likely occur during the transfer of chemicals from the delivery vehicle to the Applicator's vehicle at the staging area, or from the Applicator's vehicle to the application vessel.

Spill Response BMPs Materials

The following BMP materials should be immediately available during chemical handling on land.

- Secondary containment for storage of chemicals at the staging area and in the Applicator's vehicle with enough capacity to hold the contents of the largest container of chemical.
- Booms, waddles, or any suitable barrier device to control the spread of a liquid or granular chemical spill.
- Absorbents sufficient to hold the contents of the largest liquid chemical container. Examples of acceptable absorbents are pads, mats, or clay/silica gel litters (e.g. kitty litter) specifically designed for spill response.
- Shovel.
- Broom or other equipment suitable for picking up granular materials.



- Watertight container/drum large enough to contain impacted soils.
- Watertight container/drum large enough to contain impacted BMPs and PPE materials.

Spill Response Procedures

Should a spill occur on land, at a minimum, the following actions should be taken.

- Spill on a paved or concrete surface:
 - o Deploy booms, waddles, or another suitable barrier device to prevent the spill from spreading.
 - o If the spill is a liquid chemical, use absorbents (pads, mats, or litter) to absorb the spill from the surface.
 - o If the spill is a granular chemical, use broom or other suitable equipment to sweep all granular material from surface.
 - o Use shovel or broom to clean up spent absorbent.
 - o Use watertight containers to hold used BMP and PPE materials until they can be properly disposed in accordance with Local, State, and Federal regulations.
- Spill on soil or vegetated surface:
 - o Deploy booms, waddles, or another suitable barrier device to prevent the spill from spreading.
 - o Use absorbent materials (pads, mats, or litter) for any standing liquid.
 - o For a granular spill, remove granular material, and remove soil from impacted area to at least a depth of 2 inches. For a liquid spill, following removal of standing liquid, remove soil from impacted area to at least a depth of 4 inches.
 - o Immediately place impacted soil and vegetation, BMPs, and PPE materials in a watertight container and dispose of in accordance with and Local, State, and Federal Requirements.
- Notify Facility Contacts listed in section 3. **EMERGENCY NOTIFICATION AND AGENCY CONTACTS Facility Contacts** of this Plan of the spill.
- In accordance with the TKPOA CMT National Pollutant Discharge Elimination System (NPDES) Permit (NPDES Permit) Attachment E Section V.G. provide:
 - o Within 24 hours, provide the Lahontan Water Board with a Twenty-Four-Hour Report as described in NPDES Permit Attachment E Section V.G.1.



- o Within five days, provide the Lahontan Water Board with a Five-Day Written Report as described in NPDES Permit Attachment E Section V.G.2.
- o Immediately contact the Governor's Office of Emergency Services (OES), as described in NPDES Permit Attachment E Section V.G.3.
 - The Governor's OES must notify the following immediately:
 - Lahontan Water Board
 - Local health officer
 - Administrator of environmental health
- o Within 24 hours, notify the Lahontan Water Board's Lake Tahoe office by telephone of any spills reported to the Governor's OES as described in NPDES Permit Attachment E Section V.G.3.
- Notify other applicable agencies listed in section **3. EMERGENCY NOTIFICATION AND AGENCY CONTACTS** of this Plan of the spill as required.

7.3. Spill Within Application Vessel

Spill Scenarios

A spill within the application vessel would most likely occur during the transfer of chemical from the Applicator's vehicle to the application vessel, or from the manufacturer's container to application system.

Spill Response BMP Materials

The following BMP materials should be immediately available during chemical handling within the application vessel.

- Booms, waddles, or any suitable barrier device to control the spread of a liquid or granular chemical spill.
- Absorbents sufficient to hold the contents of the largest liquid herbicide chemical container. Examples of acceptable absorbents are pads, mats, or clay/silica gel litters (e.g. kitty litter) specifically designed for spill response.
- Watertight container for impacted BMP and PPE materials.
- Broom or other equipment suitable for cleaning up impacted absorbents or granular herbicide chemicals.



Spill Response Procedures

Should a spill occur within the application vessel, at a minimum, the following actions should be taken.

- Immediately stop chemical application and stop vessel if in motion.
- Deploy booms, waddles, or another suitable barrier device around the spill.
- If the spill is a liquid chemical, use absorbents (pads, mats, or litter) or to remove the spill from the floor of the application vessel.
- If the spill is a granular chemical, use broom or other suitable equipment to sweep all granular material from the floor of the application vessel.
- Take special care to rinse shoes or any other personal items that may have come in contact with the chemical that will also come in contact with the land or water after exiting the application vessel.
- Place impacted BMPs, PPE materials and swept up granular herbicide chemicals into a watertight container and dispose of in accordance with Local, State, and Federal Requirements.

7.4. Spill to Water Within a Test Site

Spill Scenarios

A spill to the water within a test site would most likely occur from a spill from the manufacturer's container during transfer of chemicals to the application equipment, a malfunction in the application equipment during treatment, or if the incorrect concentration of chemical is applied due to operator error or incorrect calibration of application equipment. Spill response procedures differ slightly for herbicide chemical as outlined below.

Spill Response BMP Materials

The following BMP materials should be immediately available during chemical application within a test site.

Herbicide Chemical Spill Response BMP Materials:

- Herbicide Spill Response System (see Appendix C)
- GPS unit to record coordinates of spill site.
- RWT.

Spill Response Procedures

Should a spill occur to the water within a test site, at a minimum, the following actions should be taken.



- Immediately stop any chemical application and stop application vessel if in motion, and record GPS coordinates to identify location of spill.
- Apply RWT (less than 50 mL) to the spill area as an aid for visual identification of the spill (this BMP would apply only if RWT is not already being applied with an herbicide application at a test site as required under the NPDES for the CMT).
- Herbicide Chemical Spills Only:
 - o If an herbicide chemical spill is estimated to result in a concentration that is likely to exceed the maximum label allowable concentrations (i.e. 5 ppm for endosulfan, 2.5 ppm for triclopyr) within the test site, the Spill Response Contractor listed in **Section 3. EMERGENCY NOTIFICATION AND AGENCY CONTACTS** of this Plan will be immediately deployed to the spill area.
 - Stratus Engineering Associates will deploy the Herbicide Spill Response System to the spill area and pump affected water (identified by the GPS coordinates and RWT) at a maximum rate of 300 gallons per minute until the dye is no longer visible or a minimum of 1,600-gallons of water has been removed.
 - o If an herbicide chemical spill is suspected to have caused a concentration of less than the maximum label allowable concentrations (i.e. 5 ppm for endosulfan, 2.5 ppm for triclopyr) within the testing site, no action will be taken.
- Notify the CMT Project Team Contacts listed in **Section 3. EMERGENCY NOTIFICATION AND AGENCY CONTACTS** of this Plan about the spill.
- In accordance with the TKPOA CMT NPDES Permit Attachment E Section V.G. provide:
 - o Within 24 hours, provide the Lahontan Water Board with a Twenty-Four-Hour Report as described in NPDES Permit Attachment E Section V.G.1.
 - o Within five days, provide the Lahontan Water board with a Five-Day Written Report as described in NPDES Permit Attachment E Section V.G.2.
 - o Immediately contact the Governor's Office of Emergency Services (OES), as described in NPDES Permit Attachment E Section V.G.3.
 - The Governor's OES must notify the following immediately:
 - Lahontan Water Board
 - Local health officer
 - Administrator of environmental health



- o Within 24 hours, notify the Lahontan Water Board's Lake Tahoe office by telephone of any spills reported to the Governor's OES as described in NPDES Permit Attachment E Section V.G.3.
- Notify other applicable agencies listed in **Section 3. EMERGENCY AND AGENCY CONTACTS** of this Plan about the spill.
- Water extracted during a spill response will be disposed of outside the Tahoe Basin area by the spill response contractor in accordance with Local, State, and Federal regulations (see details in Appendix C).

7.5. Spill to Water Outside the Test Sites

Spill Scenarios

A spill to the water outside of the test sites would most likely occur from a malfunction in the application vessel or operator error that would cause the manufacturer's container, or the contents of the container, to spill into the water. Spill response procedures differ slightly for herbicide chemical as outlined below.

Spill Response BMP Materials

The following BMP materials should be immediately available during chemical application within a test site.

Herbicide Chemical Spill Response BMP Materials:

- Herbicide Spill Response System (see Appendix C)
- GPS unit to record coordinates of spill site.
- RWT.

Spill Response Procedures

Should a spill occur to the water outside of a testing site, at a minimum, the following actions should be taken.

- Immediately stop chemical application and stop application vessel if in motion, and record GPS coordinates to identify location of spill.
- Apply RWT to the spill area as an aid for visual identification of the spill (this BMP would apply only if RWT is not already being applied with an herbicide application at a CMT test site as required under the NPDES for the CMT).
- Herbicide Spills Only:
 - o Call the spill response contractor **Section 3. EMERGENCY AND AGENCY CONTACTS** of this Plan immediately to the spill site.



- o The spill response contractor will deploy the Herbicide Spill Response System to the spill area and pump affected water (identified by the RWT) at a maximum rate of 300 gallons per minute until the dye is no longer visible or approximately 2,000 gallons has been removed.
- Notify the Facility Contacts listed in **Section 3. EMERGENCY AND AGENCY CONTACTS Facility Contacts** of this Plan about the spill.
- In accordance with the TKPOA CMT NPDES Permit Attachment E Section V.G. provide:
 - o Within 24 hours, provide the Lahontan Water Board with a Twenty-Four-Hour Report as described in NPDES Permit Attachment E Section V.G.1.
 - o Within five days, provide the Lahontan Water board with a Five-Day Written Report as described in NPDES Permit Attachment E Section V.G.2.
 - o Immediately contact the Governor's Office of Emergency Services (OES), as described in NPDES Permit Attachment E Section V.G.3.
 - The Governor's OES must notify the following immediately:
 - Lahontan Water Board
 - Local health officer
 - Administrator of environmental health
 - o Within 24 hours, notify the Lahontan Water Board's Lake Tahoe office by telephone of any spills reported to the Governor's OES as described in NPDES Permit Attachment E Section V.G.3.
- Notify other applicable agencies listed in **Section 3. EMERGENCY AND AGENCY CONTACTS** of this Plan about the spill.
- Water extracted during a herbicide chemical spill response will be disposed of outside the Tahoe Basin area by the spill response contractor in accordance with Local, State, and Federal regulations (see Appendix C for additional details).

7.6. Spill Response Contractor

The Spill Response Contractor will be responsible for pumping water from the Tahoe Keys Lagoons in response to an herbicide chemical spill that occurs outside the test sites or within a test site that is suspected to result in a concentration more than the maximum label allowable concentrations (i.e. 5 ppm for endothall, 2.5 ppm for triclopyr). At a minimum, the Spill Response Contractor will have the capabilities to perform the following activities:



- Respond to a spill anywhere in the Tahoe Keys Lagoons within a maximum 20 minutes of notification that a spill occurred.
- Equipment capable of responding to a spill within the Tahoe Keys Lagoons from the residential streets in the Tahoe Keys neighborhood.
- Pumping capacity of 300 gallons per minute.
- Holding tank capacity of a minimum 1,600 gallons.
- Final transportation and disposal of pumped water.



8. CONDITIONS AND LIMITATIONS

This Plan has been prepared for the exclusive use of the TKPOA. Stratus Engineering Associates (Stratus) has performed the work described herein within the limits prescribed by our proposal and using the usual degree of care and thoroughness normally employed by the environmental consulting profession at the time and locality in which the study was completed. The scope of services performed in execution of this Plan may not be appropriate to satisfy the needs of other users, and any use of this document or the findings, conclusions, or recommendations presented herein is at the sole risk of said third party.

Prepared By:



Robert Kull, P.E.
Principal Engineer



Kari Campos
Project Engineer



FIGURES



Figure 1. Control Methods Test Final Treatment Sites



Figure 2. Boat Storage, Launching, and Mooring



APPENDIX A DAILY FIELD REPORT / SPILL REPORT FORM



Pre-Field Checklist – Spill Prevention and Response

Tahoe Keys Lagoons Aquatic Weed Control Methods Test

Environmental Program Manager (EPM) <i>Responsible for observing and documenting chemical application and spill prevention/response activities.</i>			
General:	☐ Health and Safety Plan Available ☐ Spill Prevention and Response Plan (SPRP) Available ☐ Tail Gate Safety Meeting Forms ☐ Field Forms ☐ Public Questions Contact Card		Notes:
Staging Area Address: Time: Names of Those Present: 	Chemicals Present: ☐ Endothall ☐ Aquathol K [®] ☐ Cascade [®] ☐ Triclopyr ☐ Renovate-3 [®] ☐ Reovate-OTF [®] ☐ EutroSORB [®] WC ☐ RWT ☐ Other:	BMPs: ☐ Appropriately Sized Secondary Containment at Staging Area ☐ Appropriately Sized Secondary Containment in Transportation Vehicle ☐ Chemicals Sealed in Manufacturer's Containers ☐ Quantity of Chemical Loaded in Transportation Vehicle Does Not Exceed Amount for Three CMT Sites ☐ Appropriate Quantity of Boom/Waddles/Other Barrier Devices ☐ Appropriate Quantity of Absorbents/Pads/Mats ☐ Shovel ☐ Broom/Vacuum for Granular Material Spill ☐ Appropriately Sized Watertight Drum for Impacted BMPs/PPE, soil, and Spilled Chemical	Notes/Specific BMPs Available for Use:
Application Vessel Boat Launch Location Address: Time: Names of Those Present: 	Chemicals Present: ☐ Endothall ☐ Aquathol K [®] ☐ Cascade [®] ☐ Triclopyr ☐ Renovate-3 [®] ☐ Reovate-OTF [®] ☐ EutroSORB [®] WC ☐ RWT ☐ Other:	BMPs: ☐ Appropriately Sized Secondary Containment in Application Vessel ☐ Application Equipment Integrity Tested and Calibrated by Applicator ☐ Chemicals Sealed in Manufacturer's Containers ☐ Quantity of Chemical Loaded in Application Vessel Does Not Exceed Amount for Three CMT Sites ☐ Appropriate Quantity of Boom/Waddles/Other Barrier Devices ☐ Appropriate Quantity of Absorbents/Pads/Mats ☐ Shovel ☐ Broom/Vacuum for Granular Material Spill ☐ Appropriately Sized Watertight Drum for Impacted BMPs/PPE and Spilled Chemical	Notes/Specific BMPs Available for Use:



Pre-Field Checklist – Spill Prevention and Response

Tahoe Keys Lagoons Aquatic Weed Control Methods Test

Spill Response Contractor Starting Address: Time: _____ Names of Those Present: 	Equipment: ☐ Equipment Comparable to Figure C-1 in SPRP ☐ Water Tank (Minimum 1,600 Gallon Capacity) ☐ Floating Hoses ☐ Hose Capable of Reaching 15' Depth ☐ Manifest Forms ☐ Other:	Notes:	
Photo Log	Photos Required: ☐ Yes ☐ No	Photo #	Photo Descriptions:



Pre-Field Checklist – Spill Prevention and Response

Tahoe Keys Lagoons Aquatic Weed Control Methods Test

NOTES:

Name: _____

Signature: _____ Date: _____



Environmental Program Manager (EPM)

Environmental Program Manager (EPM)
Responsible for observing and documenting chemical application and spill prevention/response activities.

General Information			
Facility Name	TKPOA		
Date		Start/End Time	
Name(s)			
Title(s)			
Contact Information			
Project Site Information			
Weather at time of this inspection/observation?			
☐ Clear ☐ Cloudy ☐ Rain ☐ Sleet ☐ Fog ☐ Snow ☐ High Winds			
☐ Other:		Temperature: _____ F	

Project Forms and Documentation			
	Activity	Completed	Corrective Action Needed and/or Notes
1	Safety and Operations Tailgate Meeting Conducted	☐ Yes ☐ No	
2	Pre-Field Checklist Completed	☐ Yes ☐ No	
3	Spill Occurred	☐ Yes ☐ No ☐ N/A	
4	Spill Report Completed	☐ Yes ☐ No ☐ N/A	

Project Observations	
Description of Planned Activities:	



Daily Field Report - Spill Prevention and Response

Tahoe Keys Lagoons Aquatic Weed Control Methods Test

Spill Prevention and Response Plan

Appendix C

Project Observations Continued

Problems/Variations from Planed Activities ☐ Yes ☐ No

Summarize if Yes

Observed inured, trapped, or dead wildlife ☐ Yes ☐ No

Summarize if Yes

Encounter any uncooperative members of the public ☐ Yes ☐ No

Summarize if Yes

Observation of paint/start of cyanobacteria growth ☐ Yes ☐ No

Summarize if Yes

Recommendations or other notes for future Spill Prevention and Response activities ☐ Yes ☐ No

Summarize if Yes



Daily Field Report - Spill Prevention and Response

Tahoe Keys Lagoons Aquatic Weed Control Methods Test

Spill Prevention and Response Plan

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Photo Log NOTES:	Photo #	Photo Descriptions:



Daily Field Report - Spill Prevention and Response

Tahoe Keys Lagoons Aquatic Weed Control Methods Test

Spill Prevention and Response Plan

Appendix C

NOTES:

Name: _____

Signature: _____ **Date:** _____



Spill Report Form – Spill Prevention and Response

Tahoe Keys Lagoons Aquatic Weed Control Methods Test

Spill Prevention and Response Plan

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Environmental Program Manager (EPM)

Responsible for observing and documenting chemical application and spill prevention/response activities.

General Information			
Facility Name:	TKPOA		
Date:		Start/End Time	
Name(s):			
Title(s):			
Contact Information:			
Notifications:			
Facility Contact Name:	Notes of Discussion:		
Time of contact:			
Facility Contact Name:	Notes of Discussion:		
Time of contact:			
Agencies and Agency Personnel Contacted:	Notes of Discussion:		
Time of contact:			
Agencies and Agency Personnel Contacted:	Notes of Discussion:		
Time of contact:			

Spill Report Form – Spill Prevention and Response

Tahoe Keys Lagoons Aquatic Weed Control Methods Test

Spill Prevention and Response Plan

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Weather Information

Weather at time of the spill:

☐ Clear ☐ Cloudy ☐ Rain ☐ Sleet ☐ Fog ☐ Snow ☐ High Winds
☐ Other: Temperature: _____F

General Spill Information

Location of Spill:

☐ Land on Paved Surface ☐ Land on Vegetated Surface ☐ Application Vessel ☐ Water Within Test Site
☐ Water Outside Test Site

Location of Spilled Herbicide Chemical:

Test Sites Affected (if applicable):

Chemicals Spilled:

Name of chemical:

Approximate amount of spilled chemical:

Events that led to the spill:

Spill Report Form – Spill Prevention and Response

Tahoe Keys Lagoons Aquatic Weed Control Methods Test

Spill Prevention and Response Plan

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Spill Response Activities and Best Management Practices (BMPs) Used

	Spill Response Activity	BMPs Used	Controls Adequate (appropriate, effective, and operating)?	Notes:
Spill Occurring on Land:				
1	Spill Containment	☐ Waddles ☐ Booms ☐ Other:	☐ Yes ☐ No	Notes:
2	Spill Removal	☐ Absorbent Pads ☐ Clay/Silica Litter ☐ Broom/Sweep ☐ Other:	☐ Yes ☐ No	Notes:
3	Affected Soils or Vegetation	☐ Depth of soil/vegetation removed: _____ ☐ N/A	☐ Yes ☐ No	Notes:
4	Type of Disposal Container	☐ Drum ☐ Other:	☐ Yes ☐ No	Notes:
5	Other Spill Response	Other BMPs	☐ Yes ☐ No	Notes:
Spill Occurring on Application Vessel				
1	Spill Containment	☐ Waddles ☐ Booms ☐ Other:	☐ Yes ☐ No	Notes:
2	Spill Removal	☐ Absorbent Pads ☐ Clay/Silica Litter ☐ Broom/Sweep ☐ Other:	☐ Yes ☐ No	Notes:
3	Type of Disposal Container	☐ Drum ☐ Other:	☐ Yes ☐ No	Notes:
4	Other Spill Response	Other BMPs	☐ Yes ☐ No	Notes:

Spill Report Form – Spill Prevention and Response

Tahoe Keys Lagoons Aquatic Weed Control Methods Test

Spill Prevention and Response Plan

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	Spill Response Activity	BMPs Used	Controls Adequate (appropriate, effective, and operating)?	Notes:
Spill Occurring on Water				
1	Rhodamine WT Applied	☐ Yes ☐ No ☐ Amount:	☐ Yes ☐ No	Notes:
2	Herbicide Spill Response System Deployed	☐ Yes ☐ No ☐ Amount of affected water removed:	☐ Yes ☐ No	Notes:
3	Other Spill Response	☐ Depth of soil/vegetation removed: _____ ☐ N/A	☐ Yes ☐ No	Notes:

Photo Log NOTES:	Photo #	Photo Descriptions:

Spill Report Form – Spill Prevention and Response

Tahoe Keys Lagoons Aquatic Weed Control Methods Test

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Photo Log NOTES:	Photo #	Photo Descriptions:

Spill Report Form – Spill Prevention and Response

Tahoe Keys Lagoons Aquatic Weed Control Methods Test

Spill Prevention and Response Plan

Appendix C

NOTES:

Name: _____

Signature: _____ **Date:** _____

APPENDIX B SAFTEY DATA SHEETS



SAFETY DATA SHEET



PHOSLOCK[®]

Granules / Powder

SECTION 1. IDENTIFICATION

GHS product identifier : Phoslock Granules / Powder

Other means of identification : Not Available

Recommended use of the chemical and restrictions on use

Relevant identified uses : Used to remove prescribed oxyanions in a variety of natural environments such as lakes, rivers, estuaries, dams, ornamental ponds and natural wetlands. Also in artificial environments including waste effluents such as sewage and industrial effluents and as a barrier within containment cells for leachable wastes.

Supplier's details : SePRO Corporation
11550 North Meridian Street, Suite 600
Carmel, IN 46032
Tel: 317-580-8282, Toll free: 1-800-419-7779
Fax: 317-580-8290
Monday - Friday, 8am to 5pm EST
www.sepro.com

Emergency telephone number : 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

Classification of the substance or mixture

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability	0	
Toxicity	1	
Body Contact	0	
Reactivity	0	
Chronic	0	

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme



SDS

PHOSLOCK®



Note: The hazard category numbers found in GHS classification in section 2 of this SDSs are NOT to be used to fill in the NFPA 704 diamond. Blue = Health Red = Fire Yellow = Reactivity White = Special (Oxidizer or water reactive substances)

GHS Classification: Not Applicable

Label Elements

GHS Label Elements: Not Applicable

Signal Word: Not Applicable

Hazard statement(s): Not Applicable

Precautionary Statement(s)

Prevention

If medical advice is needed, have product container or label at hand.
Keep out of reach of children.
Read label before use.

Response: Not Applicable

Storage: Not Applicable

Disposal: Not Applicable

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances See section below of composition of Mixtures

CAS No.	% [weight]	Name
Not Available	100	Ingredients determined not to be hazardous

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

Eye Contact

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- See medical attention without delay; if pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact

If skin or hair contact occurs:

- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

Inhalation

- If fumes, aerosols or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

Ingestion

- If swallowed do **NOT** induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.
- Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.

Most important symptoms and effects, both acute and delayed: See Section 11

Indication of any immediate medical attention and special treatment needed: Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

There is no restriction on the type of extinguisher which may be used. Use extinguishing media suitable for surrounding area.

Special hazards arising from the substrate or mixture

Fire Incompatibility: Not known.

Special protective equipment and precautions for fire-fighters**Fire Fighting:**

Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves in the event of a fire. Prevent, by any means available, spillage from entering drains or water courses. Use firefighting procedures suitable for surrounding area. **DO NOT** approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire. Equipment should be thoroughly decontaminated after use.

Fire/Explosion Hazard:

Non combustible. Not considered a significant fire risk, however containers may burn. May emit poisonous fumes. May emit corrosive fumes.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures**Minor Spills:**

Remove all ignition sources. Clean up all spills immediately. Avoid contact with skin and eyes. Control personal contact with substance, by using protective equipment. Use dry clean up procedures and avoid generating dust. Place in a suitable, labelled container for waste disposal.

Major Spills:

Moderate Hazard.

CAUTION: Advise personnel in area. Alert Emergency Services and tell them location and nature of hazard. Control personal contact by wearing protective clothing. Prevent, by any means available, spillage from entering drains or water courses. Recover product wherever possible.

IF DRY: Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal.

IF WET: Vacuum/shovel up and place in labelled containers for disposal.



ALWAYS: Wash area down with large amounts of water and prevent runoff into drains. If contamination of drains or waterways occurs, advise Emergency Service.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling: Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Prevent concentration in hollows and sumps. **DO NOT** enter confined spaces until atmosphere has been checked. **DO NOT** allow material to contact humans, exposed food or food utensils. Avoid contact with incompatible materials. When handling, **DO NOT** eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Launder contaminated clothing before re-use. Use good occupational work practice. Observe manufacturer's storage and handling recommendations contained within this SDS. Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Other Information: Store in original containers. Keep containers securely sealed. Store in a cool, dry area protected from environmental extremes. Store away from incompatible materials and foodstuff containers. Protect containers against physical damage and check regularly for leaks. Observe manufacturer's storage and handling recommendations contained within this SDS.

For major quantities: Consider storage in banded areas - ensure storage areas are isolated from sources of community water (including stormwater, ground water, lakes and streams). Ensure that accidental discharge to air or water is the subject of a contingency disaster management plan; this may require consultation with local authorities.

Conditions for safe storage, including any incompatibilities

Suitable container: Polyethylene or polypropylene container. Check all containers are clearly labelled and free from leaks.

Storage Incompatibility: Avoid reaction with oxidizing agents. Protect from light.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Occupational Exposure Limits (OEL)

Ingredient Data: Not Available

Emergency Limits				
Ingredient	Material Name	TEEL-1	TEEL-2	TEEL-3
Phoslock Granules / Powder	Not Available	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
Ingredients determined not to be hazardous	Not Available	Not Available

Exposure Controls

PHOSLOCK®

Phosphorus Locking Technology

Appropriate engineering controls:

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction. If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered.

Such protection might consist of:

- (a) particle dust respirators, if necessary, combined with an absorption cartridge;
- (b) filter respirators with absorption cartridge or canister of the right type;
- (c) fresh-air hoods or masks.

Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:

Direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone or rapid air motion).
Grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).

Air Speed:

1-2.5 m/s (200-500 f/min.)
2.5-10 m/s (500-2000 f/min)

Within each range the appropriate value depends on:

Lower end of the range

- 1: Room air currents minimal or favorable to capture.
- 2: Contaminants of low toxicity or of nuisance value only.
- 3: Intermittent, low production.
- 4: Large hood or large air mass in motion.

Upper end of the range

- 1: Disturbing room air currents
- 2: Contaminants of high toxicity
- 3: High production, heavy use
- 4: Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min) for extraction of crusher dusts generated 2 metres distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.

Personal protection:

**Eye and face protection:**

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

Skin protection:

See Hand protection below.

Hands/feet protection:

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: frequency and duration of contact, chemical resistance of glove material, glove thickness and dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.

Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended. Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present: polychloroprene; nitrile rubber; butyl rubber; fluorocautchouc; polyvinyl chloride.

Gloves should be examined for wear and/ or degradation constantly.

Body protection: See other protection below.

Other protection:

Overalls.
P.V.C. apron.
Barrier cream.
Skin cleansing cream.
Eye wash unit.

Thermal hazards: Not available.

Respiratory protection Particulate. (AS/NZS 1716 & 1715, EN 143:000 & 149:001, ANSI Z88 or national equivalent)

Quartz CAS 14808-60-7	0.025 mg/m ³ TWA (respirable fraction)	Not established
Titanium dioxide CAS 13463-67-7	10 mg/m ³ TWA	15 mg/m ³ TWA (total dust)

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene
OSHA = Occupational Safety and Health Administration
TWA = Time Weighted Averages are based on 8h/day, 40h/week exposures

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Light brown granules; insoluble in water
Physical state	Divided solid
Odor	Not available
Odor threshold	Not available
pH (as supplied)	Not applicable
Melting point / freezing point (°C)	>1000
Initial boiling point and boiling range (°C)	Not applicable
Flash point (°C)	Not applicable
Evaporation rate	Not applicable
Flammability	Not applicable
Relative density (Water = 1)	1.1
Partition coefficient n-octanol / water	Not available
Auto-ignition temperature (°C)	Not applicable
Decomposition temperature	Not available
Viscosity (cSt)	Not available
Molecular weight (g/mol)	Not applicable
Taste	Not available
Explosive properties	Not available
Oxidising properties	Not available
Upper Explosive Limit (%)	Not applicable
Lower Explosive Limit (%)	Not applicable
Vapour pressure (kPa)	Not applicable
Solubility in water (g/l)	Immiscible
Vapour density (Air = 1)	Not available
Surface Tension (dyn/cm or mN/m)	Not applicable



Volatile Component (% vol)	Not applicable
Gas group	Not available
pH as a solution (1%)	7 – 7.5 (2%)
VOC g/L	Not available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	See section 7 • Unstable in the presence of incompatible materials.
Chemical stability	• Product is considered stable. • Hazardous polymerization will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects:

Inhaled	• Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled. • If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.
Ingestion	• Accidental ingestion of the material may be damaging to the health of the individual. • Ingestion may result in nausea, abdominal irritation, pain and vomiting.
Skin Contact	• The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting. • Open cuts, abraded or irritated skin should not be exposed to this material. • Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	• Although the material is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn). • Slight abrasive damage may also result. The material may produce foreign body irritation in certain individuals.
Chronic	• Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. • Long term exposure to high dust concentrations may cause changes in lung function (i.e. pneumoconiosis) caused by particles less than 0.5 micron penetrating and remaining in the lung. A prime symptom is breathlessness. Lung shadows show on X-ray.

Phoslock Granules / Powder

Toxicity	Irritation
Dermal (Rabbit) LD50: None PDII/4hr ^[2]	Not available
Inhalation (Rat) LC50: >5000 mg/L/4h ^[2]	

Legend: 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

Acute Toxicity	Data available but does not fill the criteria for classification
Skin Irritation/Corrosion	Data not available to make classification
Serious Eye Damage/Irritation	Data not available to make classification
Respiratory or Skin Sensitization	Data not available to make classification
Mutagenicity	Data not available to make classification
Carcinogenicity	Data not available to make classification
Reproductivity	Data not available to make classification
STOT – Single Exposure	Data not available to make classification
STOT – Repeated Exposure	Data not available to make classification
Aspiration Hazard	Data not available to make classification

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Ingredient	Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<i>Legend</i>	<i>Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances – Ecotoxicological Information – Aquatic Toxicity 3. EPIWIN Suite V3.12 – Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database – Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) – Bioconcentration Data 7. METI (Japan) – Bioconcentration Data 8. Vendor Data</i>				

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No data available for all ingredients	No data available for all ingredients

Bioaccumulative potential

Ingredient	Bioaccumulation
	No data available for all ingredients

Mobility in soil

Ingredient	Mobility
	No data available for all ingredients

SECTION 13. DISPOSAL CONSIDERATIONS

Product / Packaging Disposal Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. In most instances the supplier of the material should be consulted.

- **DO NOT** allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorized landfill.
- Recycle containers if possible, or dispose of in an authorized landfill.

SECTION 14. TRANSPORT INFORMATION

Labels Required

Marine Pollutant: No

Land transport (DOT): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations / legislation specific for the substance or mixture

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SECTION 311/312 HAZARD CATEGORIES



Immediate (acute) health hazard NO
Delayed (chronic) health hazard NO
Fire Hazard NO
Pressure Hazard NO
Reactivity hazard NO

US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4): None Reported

State Regulations

US California Proposition 65

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	Y
China - IECSC	Y
Europe-EINEC/ELINCS/NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand – NZIoC	Y
Philippines - PICCS	Y
USA – TSCA	Y

Legend: Y = All ingredients are on the inventory

N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

SECTION 16. OTHER INFORMATION

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:
www.chemwatch.net

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

Definitions and abbreviations

PC – TWA: Permissible Concentration-Time Weighted Average
PC – STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit.
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odor Safety Factor



NOAEL: No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odor Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

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TEL (+61 3) 9572 4700.

Prepared by:	SePRO Corporation
Written Date	03/12/2015
Date:	03/01/2022
Reason for Editing:	Updated information and formatting for each section.

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.

Phoslock is a registered trademark of Phoslock Technologies Pty Ltd.
Always read and follow safety directions.



Conforms to HazCom 2012/United States

SDS

Renovate® 3

SAFETY DATA SHEET



Renovate® 3

Herbicide

Section 1. Identification

GHS product identifier : Renovate® 3 Herbicide

Recommended use of the chemical and restrictions on use
Identified uses : 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.](http://www.sepro.com)
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 : GHS classification in accordance with 29CFR 1910.1200.
Flammable liquids - Category 3
Eye irritation - Category 2A
Specific target organ toxicity - repeated exposure - Category 2

Label elements
Hazard pictograms



Signal word: WARNING!



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Hazards	Flammable liquid and vapor. Causes serious eye irritation. May cause damage to organs (kidney) through prolonged or repeated exposure.
Precautionary statements	
Prevention	Keep away from heat/sparks/open flames/hot surfaces. No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ ventilating/ lighting/ equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. Wash skin thoroughly after handling. Wear protective gloves/ eye protection/ face protection.
Response	
IF ON SKIN (or hair):	Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF IN EYES:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if you feel unwell. If eye irritation persists: Get medical advice/ attention.
In case of fire:	Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Storage	Store in a well-ventilated place. Keep cool.
Disposal	Dispose of contents/ container to an approved waste disposal plant.
Other hazards	No data available

Section 3. Composition/information on ingredients

This product is a mixture.

Component	CASRN	Concentration
Triclopyr Triethylamine Salt	57213-69-1	44.05%
Ethanol	64-17-5	2.10%
Balance	Not Available	53.85%

Section 4. First aid measures

Description of first aid measures

General advice:	First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). 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.



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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. Suitable emergency eye wash facility should be immediately available.
Ingestion:	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. Never give anything by mouth to an unconscious person.
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:	To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Straight or direct water streams may not be effective to extinguish 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:	Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Nitrogen oxides. Hydrogen chloride. Carbon monoxide. Carbon dioxide.
Unusual Fire and Explosion Hazards:	This material will not burn until the water has evaporated. Residue can burn. May produce flash fire. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. If exposed to fire from another source and water is evaporated, exposure to high temperatures may cause toxic fumes.
Advice for firefighters	
Fire Fighting Procedures:	Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Eliminate ignition sources. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause



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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:

Evacuate area. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. Only Trained and properly protected personnel must be involved in clean-up operations. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. Refer to section 7, Handling, for additional precautionary measures. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: 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. Pump with explosion-proof equipment. If available, use foam to smother or suppress. 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 away from heat, sparks and flame. Keep out of reach of children. Do not swallow. No smoking, open flames or sources of ignition in handling and storage area. Do not get in eyes. Avoid contact with skin and clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Electrically ground and bond all equipment. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flashback may occur. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. 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. Minimize sources of ignition, such as static build-up, heat, spark or flame.

Section 8. Exposure controls/personal protection

Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
Triclopyr Triethylamine Salt	Dow IHG	TWA	2 mg/m ³
	Dow IHG	TWA	SKIN, DSEN, BEI
Ethanol	ACGIH	STEL	1,000 ppm
	OSHA Z-1	TWA	1,900 mg/m ³ 1,000 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 chemical goggles.

Skin protection

Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). 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: Wear clean, body-covering clothing.

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	Pink
Odor	Ammoniacal
Odor Threshold	No test data available
pH	9.5 10% <i>pH Electrode</i>
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	No test data available
Flash point	Closed cup 43 °C (109 °F) <i>Setaflash Closed Cup ASTM D3828</i>
Evaporation Rate (Butyl Acetate =1)	No data available
Flammability (solid, gas)	No data available
Lower explosion limit	No data available
Upper lower explosion limit	No data available
Vapor pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	1.1385 at 20 °C (68 °F) <i>Digital Density Meter (Oscillating Coil)</i>
Water solubility	Soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	12.5 mPa.s at 25 °C (77 °F)
Kinematic Viscosity	No data available
Explosive properties	No <i>Thermal</i>
Oxidizing properties	No significant increase (>5C) in temperature.
Liquid Density	1.1385 g/ml 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 use.
Chemical stability:	Thermally stable at recommended temperatures and pressures.
Possibility of hazardous reactions:	Polymerization will not occur.
Conditions to avoid:	Active ingredient decomposes at elevated temperatures.
Incompatible materials:	Avoid contact with: Oxidizers
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: Hydrogen chloride. Nitrogen oxides.

Section 11. Toxicological information

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

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

As product: LD50, Rat, female, 4100 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: LD50, Rabbit, male and female, > 5,000 mg/kg

Acute inhalation toxicity

No adverse effects are anticipated from single exposure to mist. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

As product: LC50, Rat, male and female, 4 Hour, Mist, > 5.4 mg/l

Maximum attainable concentration.

No deaths occurred at this concentration.

Skin corrosion/irritation

Brief contact is essentially nonirritating to skin.

Serious eye damage/ eye irritation

May cause moderate eye irritation.

May cause moderate corneal injury.

Sensitization

Did not demonstrate the potential for contact allergy in mice.

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): In animals, effects have been reported on the following organs:
Kidney.

Carcinogenicity

For similar active ingredient(s). Triclopyr. Did not cause cancer in laboratory animals.

Teratogenicity

For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

For the minor component(s): Has caused birth defects in lab animals at high doses.

Reproductive toxicity

For similar active ingredient(s). Triclopyr. In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

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.

Section 12. Ecological information

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

Toxicity

Acute toxicity to fish LC50, *Oncorhynchus mykiss* (rainbow trout), 96 Hour, 400 mg/l, OECD Test Guideline 203 or Equivalent.

LC50, *Lepomis macrochirus* (Bluegill sunfish), semi-static test, 96 Hour, > 100 mg/l

Acute toxicity to aquatic Invertebrates

EC50, eastern oyster (*Crassostrea virginica*), static test, 48 Hour, 56 - 87 mg/l, Method Not Specified.

LC50, *Daphnia magna* (Water flea), static test, 48 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent.

Acute toxicity to algae/aquatic plants

Based on information for a similar material:
Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/l in the most sensitive species tested).

ErC50, *Pseudokirchneriella subcapitata* (green algae), 72hr, Growth rate inhibition, 107 mg/l, OECD Test Guideline 201 or Equivalent

ErC50, blue-green alga *Anabaena flos-aquae*, 72 Hour, Growth inhibition, > 100 mg/l

EC50, *Lemna gibba*, 7 d, Growth inhibition, > 100 mg/l

Based on information for a similar material
ErC50, *Myriophyllum spicatum*, 14 day, 0.241 mg/l

Based on information for a similar material
NOEC, *Myriophyllum spicatum*, 14 day, 0.0191 mg/l

Persistence and degradability

Triclopyr Triethylamine Salt

Biodegradability: For similar active ingredient(s). Triclopyr. Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).
For similar active ingredient(s). Triclopyr. Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Ethanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: > 70%
Exposure time: 5 d
Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 2.08 mg/mg



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Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitizer: OH radicals

Atmospheric half-life: 2.99 d

Method: Estimated.

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

Triclopyr Triethylamine Salt

Bioaccumulation: For similar active ingredient(s). Bioconcentration potential is low (BCF < 100 or Log Pow <3).

Ethanol

Bioaccumulation: Bioaccumulation is unlikely. Bioconcentration potential is low (BCF < 100 or Log Pow <3).

Partition Coefficient: n-octanol/water(log Pow) = -0.31 Measured.

Balance

Bioaccumulation: No relevant data found.

Mobility in soil

Triclopyr Triethylamine Salt

For similar active ingredient(s).

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

Ethanol

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

Partition coefficient (Koc): 1.0 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

Proper shipping name	Combustible liquid, n.o.s. (Triclopyr Triethylamine Salt, Ethanol)
UN Number	NA 1993
Class	CBL
Packing Group	III

**Classification for SEA transport (IMO-IMDG):**

Proper shipping name FLAMMABLE LIQUID, N.O.S. (Triclopyr Triethylamine Salt, Ethanol)
UN number UN 1993
Class 3
Packing group III
Marine pollutant Triclopyr Triethylamine Salt
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 Flammable liquid, n.o.s. (Triclopyr Triethylamine Salt, Ethanol)
UN number UN 1993
Class 3
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

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Flammable (gasses, aerosols, liquids, or solids)
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

Components	CASRN
Triclopyr Triethylamine Salt	57213-69-1

Pennsylvania Right-To-Know

The following chemicals are listed because of the additional requirements of Pennsylvania Law.

Components	CASRN
Ethanol	64-17-5

California Proposition 65

WARNING: This product can expose you to chemicals including Propylene oxide, Ethylene Oxide, which is/are known to the State of California to cause cancer, and Ethylene Oxide, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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.

**Federal Insecticide,
Fungicide and Rodenticide
Act**

EPA Registration Number: 62719-37-67690

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:

DANGER

Corrosive

Causes irreversible eye damage

Harmful if swallowed or absorbed through skin

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Section 16. Other information**Hazard Rating System****NFPA**

Health: 3 Fire: 2 Instability: 0

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
DOW IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
SKIN, DSEN, BEI	Absorbed via Skin, Skin Sensitizer, Biological Exposure Indices
STEL	Short-term exposure limit
TWA	Time Weighted Average

History**Date of issue mm/dd/yyyy:** 07/17/2018**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.

SAFETY DATA SHEET



Renovate® OTF Aquatic Herbicide

Section 1. Identification

GHS product identifier : Renovate® OTF Aquatic Herbicide

Other means of identification : Not available.

EPA Registration No. : 67690-42

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 : SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A

GHS label elements

Hazard pictograms : Exclamation mark

Signal word : Warning

Hazard statements : Causes serious eye irritation.

Precautionary statements

Prevention : Wear eye or face protection. Wash hands thoroughly after handling.

Response : 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 : Not applicable.

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.

Ingredient name	%	CAS number
Proprietary ingredient 1	60 - 70	-
Triclopyr Acetic Acid, Triethylamine Salt	14	57213-69-1
Proprietary ingredient 2	0.1 - 0.9	-

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. 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 serious eye irritation.
- Inhalation** : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : Irritating to mouth, throat and stomach.

Section 4. First aid measures

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 | : No specific fire or explosion hazard. |
|---|---|

- | | |
|---|--|
| 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 | : 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. 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". |

Section 6. Accidental release measures

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 : 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. 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.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

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.

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.

Section 8. Exposure controls/personal protection

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 | : Use a properly fitted, particulate filter 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 | : Solid. [Granular solid.] |
| Color | : Creamy grayish-tan. |
| Odor | : Ammoniacal. |
| Odor threshold | : Not available. |
| pH | : 7.8 [Conc. (% w/w): 1%] |
| Melting point | : Not available. |
| Boiling point | : Not available. |
| Flash point | : Not applicable. |
| Burning time | : Not available. |
| Burning rate | : Not available. |
| 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 | : 0.7 |
| Solubility | : Not available. |
| Solubility in water | : Not available. |
| Partition coefficient: n-octanol/water | : Not available. |
| Auto-ignition temperature | : Not available. |
| Decomposition temperature | : Not available. |
| 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.
Incompatible materials	: Reactive or incompatible with the following materials: None known.
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
Renovate® OTF Aquatic Herbicide	LC50 Inhalation Vapor LD50 Dermal LD50 Oral	Rat Rat Rat	>2 mg/L >5000 mg/kg >5000 mg/kg	4 hours - -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Renovate® OTF Aquatic Herbicide	Eyes - Moderate irritant Skin - Non irritant	Rat Rat	- -	- -	- -

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Renovate® OTF Aquatic Herbicide	skin	Rat	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)

There is no data available.

Specific target organ toxicity (repeated exposure)

There is no data available.

Aspiration hazard

There is no data available.

Section 11. Toxicological information

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

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 : No known significant effects or critical hazards.
Ingestion : 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 : 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.

Numerical measures of toxicity

Acute toxicity estimates

There is no data available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Triclopyr Acetic Acid, Triethylamine Salt	Acute EC50 15.3 mg/L Fresh water	Algae - Navicula pelliculosa	4 days
Proprietary ingredient 2	Acute EC50 775 mg/L Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 120 mg/L Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 80.7 mg/L	Daphnia - Daphnia magna	21 days
	Chronic NOEC 104 mg/L	Fish - Pimephales promelas	28 days
	Acute EC50 4400+ ppb Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 >10 mg/L Fresh water	Crustaceans - Ceriodaphnia dubia	48 hours
	Acute LC50 167 ppb Fresh water	Fish - Oncorhynchus mykiss	96 hours

Persistence and degradability

There is no data available.

Bioaccumulative potential

There is no data available.

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	-	-	-



Section 14. Transport information

Environmental hazards	No.	No.	No.
Additional 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
United States inventory (TSCA 8b): Not determined.

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
Triclopyr Acetic Acid, Triethylamine Salt Proprietary ingredient 2	14 0.1 - 0.9	Yes. No.	No. No.	Yes. No.	Yes. Yes.	No. No.

SARA 313





Section 15. Regulatory information

	Product name	CAS number	%
Form R - Reporting requirements	Triclopyr Acetic Acid, Triethylamine Salt	57213-69-1	14
Supplier notification	Triclopyr Acetic Acid, Triethylamine Salt	57213-69-1	14

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
- New York** : None of the components are listed.
- New Jersey** : The following components are listed: Proprietary ingredient 1; Triclopyr Acetic Acid, Triethylamine Salt
- Pennsylvania** : The following components are listed: Proprietary ingredient 1
- California Prop. 65**

No products were found.

International regulations

- International lists** :
- Australia inventory (AICS)**: All components are listed or exempted.
 - China inventory (IECSC)**: Not determined.
 - Japan inventory**: All components are listed or exempted.
 - Korea inventory**: All components are listed or exempted.
 - Malaysia Inventory (EHS Register)**: Not determined.
 - New Zealand Inventory of Chemicals (NZIoC)**: All components are listed or exempted.
 - 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** : Not listed

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health : 1 * Flammability : 0 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 : 1 Flammability : 0 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	: 07/15/2015
Date of previous issue	: 04/15/2013
Version	: 4
Revised Section(s)	: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16.
Prepared by	: KMK Regulatory Services Inc.
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.

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

- 1.1 Product Code:** 17404
Product Name: Endothall
Synonyms: 7-oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid; Aquathol; Endothal Acid; Hydrothol; NSC 112771;
- 1.2 Relevant identified uses of the substance or mixture and uses advised against:**
Relevant identified uses: For research use only, not for human or veterinary use.
- 1.3 Details of the Supplier of the Safety Data Sheet:**
- Company Name:** Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
- Web site address:** www.caymanchem.com
- Information:** Cayman Chemical Company +1 (734)971-3335
- 1.4 Emergency telephone number:**
- Emergency Contact:** CHEMTREC Within USA and Canada: +1 (800)424-9300
CHEMTREC Outside USA and Canada: +1 (703)527-3887

Section 2. Hazards Identification

- 2.1 Classification of the Substance or Mixture:**
- Acute Toxicity: Oral, Category 3**
Acute Toxicity: Skin, Category 4
Skin Corrosion/Irritation, Category 2
Serious Eye Damage/Eye Irritation, Category 2
Specific Target Organ Toxicity (single exposure), Category 3

2.2 Label Elements:



GHS Signal Word: **Danger**

GHS Hazard Phrases:

H301: Toxic if swallowed.
H312: Harmful in contact with skin.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.

GHS Precaution Phrases:

P261: Avoid breathing {dust/fume/gas/mist/vapors/spray}.
P264: Wash {hands} thoroughly after handling.
P280: Wear {protective gloves/protective clothing/eye protection/face protection}.

GHS Response Phrases:

P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302+352: IF ON SKIN: Wash with plenty of soap and water.
P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy

to do. Continue rinsing.

P312: Call a POISON CENTER or doctor/physician if you feel unwell.

P321: Specific treatment {see ... on this label}.

P330: Rinse mouth.

P332+313: If skin irritation occurs, get medical advice/attention.

P337+313: If eye irritation persists, get medical advice/attention.

P362+364: Take off contaminated clothing and wash it before reuse.

GHS Storage and Disposal Phrases:

Please refer to Section 7 for Storage and Section 13 for Disposal information.

2.3 Adverse Human Health Causes serious eye irritation.

Effects and Symptoms: Causes skin irritation.

Harmful in contact with skin.

Material may be irritating to the mucous membranes and upper respiratory tract.

May be harmful by inhalation or skin absorption.

May cause respiratory system irritation.

Toxic if swallowed.

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	GHS Classification
145-73-3 RN7875000	Endothall	100.0 %	205-660-5 607-150-00-1	Acute Tox.(O) 3: H301 Acute Tox.(D) 4: H312 Skin Corr. 2: H315 Eye Damage 2: H319 STOT (SE) 3: H335 H336

Section 4. First Aid Measures

4.1 Description of First Aid

Measures:

In Case of Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

In Case of Skin Contact: Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

In Case of Eye Contact: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.

In Case of Ingestion: Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

Section 5. Fire Fighting Measures

- 5.1 Suitable Extinguishing Media:** Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Media: Use water spray to cool fire-exposed containers.
Unsuitable Extinguishing Media: A solid water stream may be inefficient.
- 5.2 Flammable Properties and Hazards:** No data available.
Hazards: No data available.
Flash Pt: No data.
Explosive Limits: LEL: No data. UEL: No data.
Autoignition Pt: No data.
- 5.3 Fire Fighting Instructions:** As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

Section 6. Accidental Release Measures

- 6.1 Protective Precautions, Protective Equipment and Emergency Procedures:** Avoid raising and breathing dust, and provide adequate ventilation.
As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).
- 6.2 Environmental Precautions:** Take steps to avoid release into the environment, if safe to do so.
- 6.3 Methods and Material For Containment and Cleaning Up:** Contain spill and collect, as appropriate.
Transfer to a chemical waste container for disposal in accordance with local regulations.

Section 7. Handling and Storage

- 7.1 Precautions To Be Taken in Handling:** Avoid breathing dust/fume/gas/mist/vapours/spray.
Avoid prolonged or repeated exposure.
- 7.2 Precautions To Be Taken in Storing:** Keep container tightly closed.
Store in accordance with information listed on the product insert.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

CAS #	Partial Chemical Name	Britain EH40	France VL	Europe
145-73-3	Endothall	No data.	No data.	No data.
CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
145-73-3	Endothall	No data.	No data.	No data.

8.2 Exposure Controls:

- 8.2.1 Engineering Controls (Ventilation etc.):** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
- 8.2.2 Personal protection equipment:**
- Eye Protection:** Safety glasses
- Protective Gloves:** Compatible chemical-resistant gloves
- Other Protective Clothing:** Lab coat
- Respiratory Equipment (Specify Type):** NIOSH approved respirator, as conditions warrant.
- Work/Hygienic/Maintenance:** Do not take internally.

ce Practices: Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.
Wash thoroughly after handling.
No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States: ☐ Gas ☐ Liquid ☒ Solid

Appearance and Odor: A crystalline solid

Melting Point: No data.

Boiling Point: No data.

Flash Pt: No data.

Evaporation Rate: No data.

Flammability (solid, gas): No data available.

Explosive Limits: LEL: No data. UEL: No data.

Vapor Pressure (vs. Air or mm Hg): No data.

Vapor Density (vs. Air = 1): No data.

Specific Gravity (Water = 1): No data.

Solubility in Water: No data.

Solubility Notes: ~0.2 mg/ml in PBS (pH 7.2); ~15 mg/ml in EtOH, DMSO, & DMF;

Autoignition Pt: No data.

9.2 Other Information

Percent Volatile: No data.

Molecular Formula & Weight: C₈H₁₀O₅ 186.2

Section 10. Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Stability: Unstable ☐ Stable ☒

10.3 Stability Note(s): Stable if stored in accordance with information listed on the product insert.

Polymerization: Will occur ☐ Will not occur ☒

10.4 Conditions To Avoid: No data available.

10.5 Incompatibility - Materials strong oxidizing agents

To Avoid:

10.6 Hazardous carbon dioxide

Decomposition or Byproducts: carbon monoxide

Section 11. Toxicological Information

11.1 Information on Toxicological Effects:	The toxicological effects of this product have not been thoroughly studied.
Chronic Toxicological Effects:	Endothall - Toxicity Data: Oral LDLO (man): 571 uL/kg; Oral LD50 (rat): 38 mg/kg; Intraperitoneal LD50 (mouse): 14 mg/kg; Endothall - Investigated as an agricultural chemical and reproductive effector. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. Endothall RTECS Number: RN7875000

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
145-73-3	Endothall	n.a.	n.a.	n.a.	n.a.

Section 12. Ecological Information

12.1 Toxicity:	Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.
12.2 Persistence and Degradability:	No data available.
12.3 Bioaccumulative Potential:	No data available.
12.4 Mobility in Soil:	No data available.
12.5 Results of PBT and vPvB assessment:	No data available.
12.6 Other adverse effects:	No data available.

Section 13. Disposal Considerations

13.1 Waste Disposal Method:	Dispose in accordance with local, state, and federal regulations.
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Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT):

DOT Proper Shipping Name:	Toxic solids, organic, n.o.s. (Endothall)		
DOT Hazard Class:	6.1	POISON	
UN/NA Number:	UN2811	Packing Group:	II



14.1 LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name:	Toxic solids, organic, n.o.s. (Endothall)		
UN Number:	2811	Packing Group:	II
Hazard Class:	6.1 - POISON		

14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name:	Toxic solids, organic, n.o.s. (Endothall)		
UN Number:	6.1	Packing Group:	II
Hazard Class:	6.1 - POISON		

Additional Transport Information:	Transport in accordance with local, state, and federal regulations. When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.
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SAFETY DATA SHEET

Endothall

Page: 6 of 6

Revision: 12/20/2015

Section 15. Regulatory Information

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
145-73-3	Endothall	No	Yes 1000 LB	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
145-73-3	Endothall	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

Section 16. Other Information

Revision Date: 12/20/2015

Additional Information About This Product: No data available.

Company Policy or Disclaimer: DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.



Safety Data Sheet

Issuing Date: 2017/09/29

Revision Date: 2018/11/13

Revision M

1. Identification of the Substance/Preparation and of the Company/Undertaking

Product Identifier

Turner Designs Part Numbers

: 6500-020, 6500-120, 6500-220, 8700-250

Product name

: KEYACID™ RHODAMINE WT LIQUID, CYANOFLUOR CAL CHECK SOLUTION

Supplier's details

Turner Designs
1995 N. First Street
San Jose, CA 95112-4220

Ph: 1-408-749-0994

Ph: 1-877-316-8049

Email: support@turnerdesigns.com

Emergency Telephone Number

CHEMTREC US: 1-800-424-9300

CHEMTREC WORLD: 1-703-527-3887

Recommended use of the chemical and restrictions on use

Synonyms

N/A

Recommended use

Industrial Use Only.

Uses advised against

No Information available

2. Hazards Identification

Classification

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

EMERGENCY OVERVIEW

Signal word

Not Hazardous

The product contains no substances which at their given concentration, are considered to be hazardous to health

Appearance Red

Physical State Liquid

Odor No Information available

Precautionary statements

P281 – Use personal protective equipment as required

P262 – Do not get in eyes, on skin, or on clothing

P261 – Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray

P264 – Wash face, hands and any exposed skin thoroughly after handling

P270 – Do not eat, drink or smoke when using this product

P501 – Dispose of contents/ container to an approved waste disposal plant

Hazards Not Otherwise Classified (HNOC)

Other information

Unknown Acute Toxicity

98.2 percent of the mixture consists of ingredient(s) of unknown acute toxicity

3. Composition/information on Ingredients

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910. 1200).

4. First Aid Measures

First aid measures for different exposure routes

Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes lifting lower and upper eyelids. Consult a physician.
Skin Contact	Wash skin with soap and water.
Inhalation	Move to fresh air.
Ingestion	Rinse mouth.

Most important symptoms/effects, acute and delayed

Main Symptoms No Information available.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician Treat symptomatically.

5. Fire-fighting Measures

Suitable extinguishable media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media Keep away from heat and sources of ignition.

Specific Hazards Arising from the Chemical

No Information available.

Explosion Data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

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 Avoid contact with skin and the eyes. Use personal protective equipment. For personal protection, see section 8. Ensure adequate ventilation.

Environmental Precautions

Environmental Precautions Prevent further leakage or spillage if safe to do so.

Methods and materials for containment and cleaning up

Methods for Cleaning Up

Use personal protective equipment. Dam up. Cover liquid spill with sand, earth or other noncombustible absorbent material. Take up mechanical, placing in appropriate containers for disposal. Clean contaminated surface thoroughly.

7. Handling and Storage

Precautions for Safe Handling

Advice on safe handling

Avoid contact with skin, eyes, and clothing. Do not breathe vapors/dust. In case of insufficient ventilation, wear suitable respiratory equipment. Wear personal protective equipment. Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Provide appropriate exhaust ventilation at places where dust is formed. Do not eat, drink, or smoke when using this product. Use personal protection recommended in Section 8.

Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

Store locked up. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers. Store in accordance with the particular national regulations. Store in accordance with the local regulations.

Incompatible Products

None known based on information supplied.

8. Exposure Controls/ Personal Protection

Control Parameters

Exposure guidelines

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Exposure Controls

Engineering Measures

Showers
Eyewash stations
Ventilation systems. Apply technical measures to comply with the occupational exposure limits. Process enclosure and/or ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection

Face-shield. Chemical resistant goggles must be worn. Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substances; this is irrespective of the recommendation involving the wearing of eye protection. If splashes are likely to occur, wear: Goggles.

Skin and Body Protection

Skin and Body Protection. Wear protective gloves and protective clothing. Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory Protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn.

Hygiene measures

Do not eat, drink, or smoke when using this product.

9. Exposure Controls/ Personal Protection

Physical and Chemical Properties

**Physical State
Appearance**

Liquid
Red

Odor

No information available

<u>Property</u>	<u>VALUES</u>	<u>Remarks •Method</u>
pH	10.00	
Melting point		N/A
Boiling point/boiling range	< 110 °C / 230.00 °F °F	
Flash Point	< 121 °C / < 250.00 °F °F	
Evaporation Rate	no data available	
Flammability (solid, gas)	no data available	no data available
Flammability Limits in Air		
Upper Flammability Limit	No information available	
Lower Flammability Limit	No information available	
Vapor pressure	No information available	
Specific gravity	No information available	N/A
Solubility in Other Solvents	No information available	
Partition coefficient: n-octanol/water	No information available	
Autoignition Temperature	No Data Available	N/A
Decomposition temperature	No information available	
Kinematic viscosity	No Data Available	
Dynamic viscosity	No information available	
Explosive Properties	No information available	
Oxidizing properties	No information available	

Other information

Softening point	No information available
Molecular Weight	
VOC Content(%)	No information available
Density	No information available

10. Stability and Reactivity

Reactivity

No data available

Chemical Stability

Stability under recommended storage conditions

Hazardous Reactions

None under normal processing

Conditions to avoid

Extremes of temperature and direct sunlight.

Incompatible materials

None known based on information supplied

Hazardous decomposition products

May emit toxic fumes under fire conditions.

11. Toxicological Information

Information on Likely Routes of Exposure

Product Information

Inhalation	Avoiding breathing vapors or mists.
Eye Contact	Avoid contact with eyes.
Skin Contact	Avoid contact with skin.
Ingestion	Not an expected route of exposure.

Information on Toxicological Effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.
Germ cell mutagenicity No information available.
Carcinogenicity No information available.
Reproductive Toxicity No information available.
Specific target organ systemic Toxicity (single exposure) No information available.
Specific target organ systemic Toxicity (repeated exposure) No information available.
Aspiration Hazard No information available.

Numerical Measures of Toxicity –Product information

Unknown Acute Toxicity 98.2 percent of the mixture consists of ingredient(s) of unknown acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document
A TEMix (oral) 39333 mg/kg

12. Ecological Information

Ecotoxicity

98.2% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Persistence and Degradability

No information available.

Bioaccumulation

No information available.

Other Adverse Effects

No information available

13. Disposable Considerations

Waste treatment

Waste Disposal Methods Should not be released into the environment. Dispose of in accordance with local regulations. This material, as supplied, is not a hazardous waste according to state and federal regulations (40 CFR 261).

Contaminated Packaging Do not re-use empty containers. Dispose of in accordance with local regulations.

14. Transport Information

DOT

Description NOT REGULATED

MEX

NOT REGULATED

IATA

Description NOT REGULATED

IMDG

Description NOT REGULATED

RID

ADN

15. Regulatory Information

International Inventories

TSCA	Listed
EINECS/ELINCS	Listed
DSL	Not Determined
NDSL	Not Determined
PICCS	Not Determined
ENCS	Not Determined
IECSC	Not Determined
AICS	Not Determined
KECL	Not Determined
NZIoC	Not Determined

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS – European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL – Canadian Domestic Substances List/ Non-Domestic Substances List
PICCS – Philippines Inventory of Chemicals and Chemical Substances
ENCS – Japan Existing and New Chemical Substances
IECSC – China Inventory of Chemical Substances
AICS – Australian Inventory of Chemical Substances
KECL – Korean Existing and Evaluated Chemical Substances
NZIoC – New Zealand Inventory of Chemicals

RESTRICTIONS – REACH TITLE VIII No information available

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard	NO.
Chronic health hazard	NO.
Fire hazard	NO.
Sudden Release of Pressure Hazard	NO.
Reactive Hazard	NO.

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the superfund amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated by state right-to-know regulations

Slight risk, Grade 1.

WHMIS Note

WHMIS Hazard Class

Non-controlled

HMIS	Health Hazard 1	flammability 1	Physical hazard 0	PERSONAL PROTECTION	H
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16. Other Information

Revision Date 2018/11/13

Revision note	No information available.
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Restrictions on use	No information available.
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Contact Information Website www.turnerdesigns.com

Disclaimer

The information provided on this SDS 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text

End of Safety Data Sheet

APPENDIX C SPILL RESPONSE EQUIPMENT PROCESS FLOW DIAGRAM

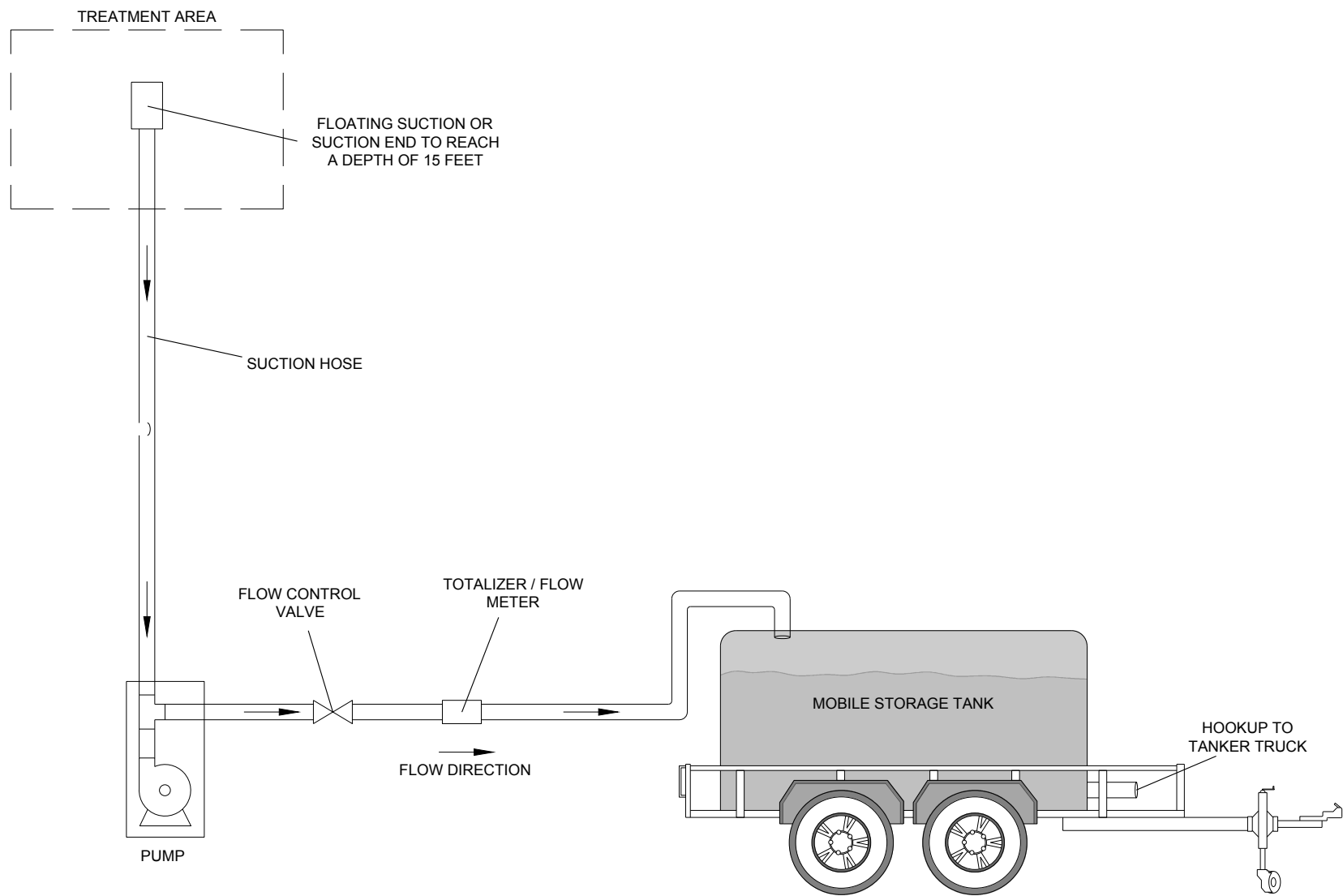


SPILL RESPONSE EQUIPMENT

In accordance with the Spill Prevention and Response Plan, **Section 7.0 SPILL RESPONSE**, a spill of herbicide chemical within the test sites (depending on quantity of material spilled, see **Section 7.4 Spill to Water Within a Test Site**) and or more importantly any quantity outside of the test sites (see **Section 7.5 Spill to Water Outside a Test Site**), will require mitigation from dedicated spill response equipment. Mitigation will include the use of hoses, pump(s) and a storage tank to extract and contain the spill within the lagoon waters (see Figure C-1 for a process flow diagram). Since extracted water will be contained and not be re-introduced into the test sites or disposed of within the Tahoe Basin, it will not need to be treated with granular activated carbon or other media.

In the event of a spill of herbicide chemical, RWT dye will be applied to the spill area (RWT would be applied only if RWT is not already being applied with an herbicide application at a CMT test site as required under the NPDES for the CMT), whether a liquid or granular herbicide spill, as an aid for visual identification of the spill. Water/spilled material will be extracted from the spill area and pumped directly into a large water tank (1,600 gallons minimum capacity). Floating hoses will be deployed in the event of a granular herbicide spill, and a hose capable of reaching a water depth of 15 feet will be deployed in the event of a liquid herbicide spill. Water will be extracted at a maximum rate of 300 gallons per minute, and the spill response time for the contractor will be a maximum of 20 minutes. Contained water will be transported and disposed of offsite by the Stratus Engineering Associates LLC; disposal documentation will be provided to the CMT Project Team.





NOTES:

1. EXTRACTED WATER TO BE DISPOSED OF OFF-SITE
2. MAXIMUM EXTRACTION RATE TO BE 300 GALLONS PER MINUTE.