



Florida Department of Environmental Protection

South District
Post Office Box 2549
Fort Myers, Florida 33902-2549
SouthDistrict@dep.state.fl.us

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

Permittee/Authorized Entity:

The Hammocks Master Association, Inc.
8660 Amberjack Circle
Englewood, FL 34224

Mangrove Trimming

Authorized Agent:

EarthBalance
2570 Commerce Parkway
North Port, FL 34289
jlaroque@earthbalance.com

Mangrove Trimming Permit

State-owned Submerged Lands Authorization –Not Applicable
U.S. Army Corps of Engineers Authorization –Not Applicable

Permit No.:0350575-001-MA

Permit Issuance Date: June 14, 2017

Permit Construction Phase Expiration Date: June 13, 2022

Mangrove Trimming Permit

Permittee: The Hammocks Master Association, Inc.
Permit No: 0350575-001-MA

AUTHORIZATIONS **Mangrove Trimming**

Project Description

The permittee is authorized to trim 16,762 square feet (0.385 acres) of mangroves in stages to 6 feet in height as measured from the substrate. Authorized activities are depicted on the attached exhibits.

To offset unavoidable impacts that will occur from these authorized activities, the permittee shall mitigate through the enhancement of 1.0 acres of forested saltwater and freshwater wetlands.

The project described above may be conducted only in accordance with the terms, conditions and attachments contained in this permit. The issuance of this permit does not infer, nor guarantee, nor imply that future permits or modifications will be granted by the Department.

State-owned Submerged Lands Authorization

As staff to the Board of Trustees, the Department has reviewed the activity described below, and has determined the activity is exempt from the requirements of Chapter 253, Florida Statutes (F.S.).

Federal Authorization

A copy of this permit has been sent to the U.S. Army Corps of Engineers (USACE). The USACE may require a separate permit. Failure to obtain any required federal permits prior to construction could subject you to enforcement action by that agency.

Water Quality Certification

This permit constitutes certification of compliance with state water quality standards under Section 401 of the Clean Water Act, 33 U.S.C. 1341.

Other Authorizations

You are advised that authorizations or permits for this project may be required by other federal, state or local entities including but not limited to local governments and homeowner's associations. This permit does not relieve you from the requirements to obtain all other required permits or authorizations.

In addition, you are advised that your project may require additional authorizations or permits from the municipality/county in which the project is located. Please be sure to contact the local county building and environmental department to obtain these required authorizations.

PROJECT LOCATION

The activities authorized by this Permit are located at 8660 Amberjack Circle (Parcel 412028876000), Englewood, Charlotte County, Section 28, Township 41 South, Range 20 East, unnamed wetlands, within the landward extent of a Class III Waterbody.

PERMIT

The activities described herein must be conducted in accordance with:

- **The Specific Conditions**
- **The limits, conditions and locations of work shown in the attached drawings**
- **The term limits of this authorization**

You are advised to read and understand these conditions and drawings prior to commencing the authorized activities, and to ensure the work is conducted in conformance with all the terms, conditions, and drawings. If you are utilizing a contractor, the contractor also should read and understand these conditions and drawings prior to commencing the authorized activities. Failure to comply with these conditions, including any mitigation requirements, shall constitute grounds for revocation of the Permit and appropriate enforcement action by the Department.

Operation of the facility is not authorized except when determined to be in conformance with all applicable rules and this permit, as specifically described above.

SPECIFIC CONDITIONS - PRIOR TO CONSTRUCTION

1. Submittals required herein shall be directed to: Department of Environmental Protection Environmental Resource Program, South District, P.O. Box 2549, Fort Myers, Florida 33902 (hereafter referred to as "the Department") or sent via email to FTMERP_Compliance@dep.state.fl.us . Submittals include, but are not limited to, record drawings, progress reports, mitigation monitoring reports and water quality monitoring reports. **Submittals shall include the permittee's name and permit number.**
2. If the approved permit, drawings and the Specific Conditions contradict each other, then the Specific Conditions shall prevail.
3. The work authorized by this permit shall not be conducted on any property, other than that owned by the permittee, without the prior written approval of that property owner.
4. In the event the permittee files for bankruptcy prior to completion of work permitted and required by this permit, the permittee must notify the Department within 30 days of filing. The notification shall identify the bankruptcy court and case number and shall include a copy of the bankruptcy petition.
5. The permittee shall notify the Department in writing within 14 days of change in agents designated in the approved permit application.
6. This permit does not authorize the complete removal of mangroves, their root systems, or the disturbance of the substrate in which mangroves are rooted. All work authorized by this permit shall be limited to mangrove trimming. The term "trim" shall mean to cut mangrove branches, twigs, limbs, and foliage, but does not mean to remove, defoliate, or destroy the

mangroves.

SPECIFIC CONDITIONS - PRE-TRIMMING

7. There shall be no storage or stockpiling of tools, materials (i.e., lumber, pilings, debris.) within wetlands, along the shoreline or elsewhere within waters of the state unless specifically approved in the permit. All material and vegetative debris shall be removed to a self-contained upland disposal area with no stockpiling or debris within wetland areas.

SPECIFIC CONDITIONS - TRIMMING

8. Permitted mangrove trimming activities shall occur as follows:

a. Those mangroves which are less than 10 feet in pre-trimmed height shall be reduced in height to a minimum height of 6 feet, as measured from the substrate. In the event the tree cannot be reduced in height to 6 feet through trimming within the 5-year life of this permit, the final height achieved at the expiration date of the permit, shall be the final approved configuration.

b. For those mangroves which are greater than 10 feet in pre-trimmed height shall be reduced in height to a minimum height of 6 feet, as measured from the substrate. **Trimming shall be conducted in stages so that no more than 25 percent of the foliage is removed annually.** In the event the tree cannot be reduced in height to 6 feet through trimming within the 5-year life of this permit, the final height achieved at the expiration date of the permit, shall be the final approved configuration.

c. Any new mangrove growth landward of the proposed trim area occurring within the mitigation area may be maintained in the same configuration as authorized under this permit.

9. All mangrove trimming authorized by this permit shall be performed or supervised by a professional mangrove trimmer who meets the qualifications set forth in Section 403.9329 F.S. and who shall be on-site during all trimming events. The professional mangrove trimmer represented in the permit application is James Laroque. The Department shall be notified, in writing, prior to a trimming event, if there has been a change in professional mangrove trimmer.

10. Mangroves shall be trimmed using hand held equipment in a manner that will minimize impacts to the existing wetland vegetation and will not cause rutting of the soils. Heavy equipment and vehicles shall not operate within Department jurisdictional wetlands or surface waters.

11. The use of herbicides or other chemicals for the purposes of removing leaves from a mangrove is strictly prohibited.

12. All trimming shall be performed in a manner so as not result in the defoliation or destruction of the mangroves.

13. Initial mangrove trimming may be performed subsequent to issuance of this permit (and subject to all conditions and requirements of this permit). Mangroves may subsequently be maintained at the permitted configurations on an annual basis until the expiration date of this permit.

POST-TRIMMING CONDITIONS:

14. **Within 30 days following each trimming event**, the permittee shall submit photographs and written descriptions to the Department that document the pre- and post-trimming heights and conditions of the trim area to the Department to show that no more than 25% of the foliage was removed during the trimming event and to document the trim event. Enough photographs should be submitted to provide an accurate representation of the project area before and following the trim event. The photographs shall be taken from fixed reference points, the location of which shall be indicated on a plan view drawing, also to be submitted to the Department. The Report shall include a summary of the average pre- and post-trimming heights and average pre- and post-window dimensions of the mangroves and a signed statement by the Permittee or the Permittee's authorized agent, on his/her letterhead, stating that: "I hereby certify that the works permitted by the Department in this mangrove trimming permit have been completed in accordance with the approved plans and specifications. These determinations have been based upon on-site observations, scheduled and conducted by me or by a project representative under my direct supervision".

15. Pursuant to Section 403.9326(1)(d), F.S., the permittee may maintenance trim the subject mangrove areas beyond the expiration date of this permit, provided the maintenance trimming does not alter the height and configuration established by this permit.

SPECIFIC CONDITIONS – MITIGATION

16. The Permittee shall mitigate for 16,762 square feet (0.385 acres) of impacts through the enhancement of 1.0 acres of the property through exotic removal in herbaceous and forested saltwater and freshwater wetland area (Mitigation Area) in accordance with the attached Mitigation and Monitoring Plan and through the following actions and schedule and Specific Conditions:

Timeframe	Activity
Commencement of Construction	Initial Exotic Removal
60 days after Initial Exotic Removal	Time-Zero Monitoring Event
60 Days after Initial Exotic Removal	Time-Zero Monitoring Report Due
Six months after Initial Exotic Removal	Semi-Annual Maintenance Event
Six months after Semi-Annual Event	Annual Maintenance Event
60 days after 1st Annual Maintenance Event	1st Annual Monitoring Report Due
Six months after 1 st Annual Report	Semi-Annual Maintenance Event
One year after 1 st Annual Report	2 nd Annual Maintenance Event
60 days after 2nd Annual Maintenance Event	2nd Annual Monitoring Report Due
Six months after 2 nd Annual Report	Semi-Annual Maintenance Event
One year after 2 nd Annual Report	3 rd Annual Maintenance Event
60 days after 3rd Annual Maintenance Event	3rd Annual Monitoring Report Due

18. **Concurrently with commencement of any trimming event**, the Permittee shall remove all exotic and nuisance vegetation from the authorized trim areas and Parcel A and Parcel B, including Brazilian pepper (*Schinus terrebinthifolius*), air potato (*Dioscorea bulbifera*), Earleaf Acacia (*Acacia auriculiformis*), vines, and other exotic and invasive vegetation listed on the latest Category 1 and Category 2 list of the Florida Exotic Pest Plan Council (<http://www.fleppc.org/list/List-WW-F09-final.pdf>) from the Conservation Easement Areas. Exotic removal shall be conducted to ensure that the Conservation Easement Area is maintained free from Category 1 and Category 2 exotic and nuisance vegetation. Maintenance in perpetuity shall also ensure that the Conservation Easement Area maintains the species and coverage of native, desirable vegetation. Coverage of exotic and invasive plant species shall not exceed 5% of total cover between maintenance activities. Exotic and nuisance vegetation shall be cut and removed from the wetlands using hand-held equipment in a manner that will minimize impacts to existing native wetland vegetation and not cause rutting of wetland soils.

19. The Permittee shall submit a “Monitoring Report” to the Department in accordance with the schedule included above. The purpose is to determine the success of the Mitigation Area. Data shall be collected as necessary to prepare the Monitoring Report and to identify areas needing maintenance. Data shall be collected semi-annually the first three years or until success is achieved as defined below. The Monitoring Reports shall include the following information:

- (a) Date of the inspection (“Maintenance Event”);
- (b) Color photographs taken from fixed reference points;
- (c) Brief description of the extent of work completed since the previous report. Indicate on copies of the permit drawings those areas where work has been completed;
- (d) The combined percent aerial coverage of listed exotic and nuisance species prior to any removal for the reporting time period;
- (e) A description of the steps taken to remove and treat the exotic and nuisance vegetation;
- (f) Description of any native wetland species recruitment back into the project area;
- (g) Any observations of wildlife and current water levels; and
- (h) A plan for compliance with the permit to demonstrate any necessary corrective action to non-compliance or limited success with the mitigation area.

20. The exotic removal within the Mitigation Area, shall be deemed successful when all of the following criteria are met for three (3) consecutive years and approved by the Department in writing:

- (a) The site supports no more than 5% coverage by nuisance and/or exotic vegetative species, and their population is either static or declining;
- (b) All wetland areas show a minimum of 80% coverage by desirable native species appropriate to the area;
- (c) There is evidence of natural recruitment of native desirable species appropriate to the area;
- (d) There is evidence of wildlife usage; and
- (e) The area has achieved viable, sustainable ecological and hydrological functions.

21. Until the success criteria described above is achieved and approved by the Department, the Permittee shall perform annual maintenance and monitoring within the Mitigation Area:

- (a) All nuisance and exotic vegetation shall be removed without disturbing the other existing vegetation in the mitigation area; and

- (b) These activities shall constitute a “Maintenance Event” due in accordance with the schedule included above.

22. If it is determined, based upon an inspection by the Department personnel and/or review of the monitoring reports, that the exotic removal in the Mitigation Area is not meeting the success criteria as established above, the Permittee shall to develop a program outlining the methods necessary for achieving these requisite goals and submit to the Department’s South District Office, SLERP Section, 2295 Victoria Avenue, Ste. 364, P.O. Box 2549, Fort Myers, FL 33902-2549, for review, modification as necessary, and approval. The program shall be implemented within 30 days of approval and meet success criteria within two years of that same approval. Based on technical information supplied by Department personnel and other sources, this program can be required by the Department even if the monitoring reports indicate the criteria are or are not being met. If the Department evaluation determines that the exotic removal has not been successful, the Permittee may provide statistical reports other than those required by the Specific Conditions of this permit (made at the Permittee’s, expense) to show that the success criteria has been met.

23. **If success above is not achieved within 3 years of the first restoration event, remedial measures shall be required.** In addition, monitoring and maintenance requirements shall remain in effect until success is achieved. The Permittee shall submit a revised restoration and mitigation plan to the Department for its review and approval. The revised restoration and mitigation plan shall be submitted within 30 days of the 3rd anniversary date of completion of the initial exotic removal and shall include a plan, including time schedule for the enhancement area to meet the success criteria. The revised plan shall also include a maintenance and monitoring schedule to ensure that the enhancement is successful. The Permittee shall implement the revised mitigation plan, including any changes required by the Department, upon notice of approval by the Department.

NOTICE OF RIGHTS

This action is final and effective on the date filed with the Clerk of the Department unless a petition for an administrative hearing is timely filed under Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. On the filing of a timely and sufficient petition, this action will not be final and effective until further order of the Department. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department’s final action may be different from the position taken by it in this notice.

Petition for Administrative Hearing

A person whose substantial interests are affected by the Department’s action may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. Pursuant to Rule 28-106.201, F.A.C., a petition for an administrative hearing must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for

service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests are or will be affected by the agency determination;

(c) A statement of when and how the petitioner received notice of the agency decision;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, including the specific facts that the petitioner contends warrant reversal or modification of the agency's proposed action; and

(f) A statement of the specific rules or statutes that the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and

(g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wishes the agency to take with respect to the agency's proposed action.

The petition must be filed (received by the Clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000. Also, a copy of the petition shall be mailed to the permittee at the address indicated above at the time of filing.

Time Period for Filing a Petition

In accordance with Rule 62-110.106(3), F.A.C., petitions for an administrative hearing by the permittee must be filed with 21 days of receipt of this written notice. Petitions filed by any persons other than the permittee, and other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 21 days of publication of the notice or within 21 days of receipt of the written notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who has asked the Department for notice of agency action may file a petition with 21 days of receipt of such notice, regardless of the date of publication. The failure to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

Extension of Time

Under Rule 62-110.106(4), F.A.C., a person whose substantial interests are affected by the Department's action may also request an extension of time to file a petition for an administrative hearing. The Department may, for good cause shown, grant the request for an extension of time. Requests for extension of time must be filed with the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000, before the applicable deadline for filing a petition for an administrative hearing. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

Mediation

Mediation is not available in this proceeding.

FLAWAC Review

The permittee, or any party within the meaning of Section 373.114(1)(a) or 373.4275, F.S., may also seek appellate review of this order before the Land and Water Adjudicatory Commission under Section 373.114(1) or 373.4275, F.S. Requests for review before the Land and Water Adjudicatory Commission must be filed with the Secretary of the Commission and served on the Department within 20 days from the date when the order is filed with the Clerk of the Department.

Judicial Review

Any party to this action has the right to seek judicial review pursuant to section 120.68, F.S., by filing a Notice of Appeal pursuant to Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, M.S. 35, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed with 30 days from the date this action is filed with the Clerk of the Department.

Executed in Lee County, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



Jon M. Iglehart
District Director
South District

JMI/MM/pc

Attachments:

Mitigation Plan and drawings, 8 pages

CERTIFICATE OF SERVICE

The undersigned hereby certifies that this permit, including all copies, was mailed before the close of business on June 14, 2017, to the above listed persons.

FILING AND ACKNOWLEDGMENT

FILED, on this date, under 120.52(7) of the
Florida Statutes, with the designated Department Clerk,

receipt of which is hereby acknowledged.



June 14, 2017

Clerk

Date

***The Hammocks Cape Haze Mangrove Alteration or Trimming
S. 403.9328 (Mangrove Trimming and Preservation Act)***

On Behalf of:

THE HAMMOCKS MASTER ASSOC INC.
8660 AMBERJACK CIR
ENGLEWOOD , FL 34224

Prepared by:

 EarthBalance®
2570 Commerce Parkway
North Port, FL 34289

APRIL 2017

1.0 INTRODUCTION

The Hammocks Cape Haze is a condominium association located in Englewood, Florida. The proposed trimming area is not defined as riparian due to the wetland situated between the mangroves and the upland shoreline. The Condominium Association proposes an individual permit to trim **0.385** acres (65%) of mangroves to no less than six (6) feet to provide a water view for residents.

2.0 PROPOSED IMPACTS

The proposed impacts are to trim **0.385** acres of currently untrimmed non-riparian mangrove fringe.

3.0 UNIFORM MITIGATION ASSESSMENT METHOD - DETERMINATION OF CREDIT SUFFICIENCY

The mangrove trimming impacts were assessed using the State's Uniform Mitigation Assessment Method (UMAM), Chapter 62-345, F.A.C. UMAM provides a method to determine the wetland's function lost due to impacts based on the change to three parameters of wetland function: Location and Landscape Support, Water Environment, and Community Structure. This project is not proposing changes to either the Location and Landscape Support or the Water Environment functions of mangrove swamp wetland.

Application of the UMAM methodology results in an overall wetland score between zero and "1.0", with "1.0" representing full wetland function. Therefore, the overall wetland score can be thought of as a percentage of full function. A perfect score of 1.0 indicates that the assessment area is functioning at the maximum, or 100%, level. In simplest terms, UMAM is used to quantify the change in the percentage of value that a wetland provides under either impact or mitigation scenarios. This percentile change is then multiplied by the acreage of the wetland to yield the amount of Relative Functional Gain (credits) or Functional Loss (debits).

This analysis quantitatively evaluates the RMFs that have been trimmed by aggregating all impacts (or debits) and balancing the lost function of the impact with the mitigation (or credits).

"Debits" (i.e., RMF Impacts) are the sum of trimming impacts that have occurred in excess of the allowable 65% of the mangrove trees (i.e., trimming has occurred in the 35% of area that should remain untrimmed under a General Permit).

Onsite mitigation is the proposed form of freshwater marsh preservation.

4.0 PROPOSED MITIGATION

The proposed mitigation plan for The Hammocks Condominium Association Project is to provide nuisance and exotic vegetation maintenance within **1.0** acre of freshwater marsh and upland mitigation area for a period of no less than 3 years in order to facilitate the growth of mangrove and freshwater marsh vegetation. All Florida Exotic Pest Plant Council's (FLEPPC) 2015 list of invasive plant species will be treated with an EPA approved herbicide. Woody exotic species such as Brazilian pepper (*Schinus Terebinthifolius*) will be removed by hand and disposed at an appropriate off-site upland location. Cut stumps will be treated with an EPA approved herbicide. Herbaceous exotic vegetation will be foliar treated with an EPA approved herbicide. All herbicides will be mixed and applied according to the herbicide label. Ongoing maintenance events will be performed quarterly.

Monitoring is proposed for the wetland restoration area. An initial report (Time "0" Report) will be submitted within 30 days of the first quarterly maintenance event. Reports will provide an average percent cover of native and exotic vegetation based on visual estimations. Permanent photo stations will be established to document the change in conditions. Photographs will be documented in the report.

It is requested that FDEP release the mitigation site from monitoring after 3 years of maintaining the exotic species coverage below 5%.

5.0 UMAM QUANTITATIVE ANALYSIS

The UMAM scoring methodology is based on a review of three parameters of wetland functions including Location and Landscape Support, Water Environment, and Community Structure.

Location and Landscape Support is the value of the functions of the wetland to wildlife by the landscape position of the wetland and its relationship with surrounding areas. The Location and Landscape Support category takes into account a broad scope, accounting for not only areas immediately adjacent to a wetland but surrounding landscapes and barriers (i.e., roads, development, agricultural activity) that affect wildlife utilization.

Water Environment is a parameter that scores the hydrology and water quality of a given wetland and the benefit provided to fish and wildlife. Factors that may influence water quality include: whether or not a system is directly ditched; adjacency to ditches; lack of a contributing basin; or degraded water quality.

The Community Structure parameter assesses the vegetation and physical structure of the vegetative community in relation to how that vegetation supports the functions that benefit fish and wildlife utilizing the wetland. Vegetation is the base of the food web in any community and provides many additional structural habitat features for fish and wildlife.

Each of the three UMAM categories are scored on a scale of zero to “10” based on approximately ten different indicators listed in subsection 62-345.500(6) F.A.C. The sum of the scores is then divided by 30, resulting in a numerical score between zero and “1”.

Each wetland is scored in a “without” (i.e., without impact or without mitigation) or current condition and a “with” (i.e., with impacts or with mitigation) scenario. The difference of the scores of each is known as the delta, or change in function (Δ). For impacts, the change in function will be negative ($-\Delta$). Conversely, for mitigation areas, the change in function will be positive ($+\Delta$).

Mathematically this is represented as:

$$\text{Delta } (\Delta) = \text{UMAM score “with”} - \text{UMAM score “without/current”}$$

For wetland impacts, each discrete functional loss is then multiplied by the acres of each wetland impacted. The sum of the resulting values is the debit incurred by disturbance activities.

$$\text{Functional Loss (FL)} = -\Delta \times \text{acres}$$

5.1 Functional Loss

The functional loss was determined by comparing the “current” untrimmed score with the “with” impact score. The Location and Landscape Support and Water Environment for the AA are not affected by the proposed impacts. The Community Structure was determined to be negatively affected due to the proposed impacts by reducing the amount of detrital input to the Lemon Bay system, and available nesting habitat for wading birds.

The following table details the functional loss ($\text{FL} = \Delta \times \text{acres}$) calculated for RMF impacted by mangrove trimming. See attached UMAM score sheet for details.

Table 1. Wetland Functional Loss Associated with The Hammocks Cape Haze

Assessment Area	Area (acres) Proposed to Be Trimmed	Functional Loss
Mangrove Trim	0.385	0.0513

The proposed mitigation plan for The Hammocks Cape Haze Condominium Association Project is to maintain the adjacent freshwater marsh free of exotic vegetation for a period of at least 3 years. (see 4.0 Proposed Mitigation)

5.1.2 Relative Functional Gain: Mitigation

The goal of the onsite mitigation is to restore 1.0 acre freshwater marsh. The RFG of the restored mitigation area is based on the comparison of scores between the “without” and a “with” Mitigation.

Table 2. Relative Functional Gain of Mitigation

Preservation Area	Total Acres	Without Mitigation	With Mitigation	Delta	RFG
1 (Conservation Area)	1.0	0.67	0.73	0.067	0.0667

Based on the above UMAM analysis the proposed mitigation will offset the impacts to mangroves as a result of trimming to no less than six feet. The calculated RFG derived from restoration of 0.0667 units fully offsets the calculated functional loss of 0.0513 units. The restored freshwater marsh will result in greatly improved function and facilitate the growth of mangrove habitat within the marsh.

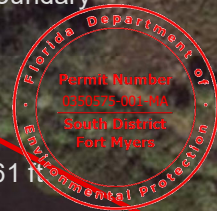
SARASOTA COUNTY

Notes:

Red and black mangroves are the primary species observed on site.

No trim

HOA Parcel Boundary



Mangrove Depth: 61 ft

Mitigation

Trim

No trim

Amberjack Way

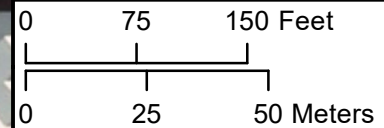
Parcel Boundary

Mangrove Treatment (25,787 sq.ft.)

Trim, 65% (16,762 sq.ft.)

No trim, 35% (9,026 sq.ft.)

Mitigation (43,560 sq.ft.) (1 ac.)



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

DATE: 5/2/2017
FILE: Mangrove Map 20170104
PROJECT: 16632
AERIAL: 2014 FDOR CCPA
PROJECTION: 83SPW0902FT
SCALE : 1: 1,560
METADATA: Upon request
GIS: 2017 EarthBalance®/ gsprehn



1 inch = 130 feet

THE HAMMOCKS CAPE HAZE
PROPERTY MAINTENANCE
MANGROVE TRIM MAP

EarthBalance®
Corporate Offices
2570 Commerce Parkway
North Port, FL 34289
(941) 426-7878
www.earthbalance.com
Central Florida Offices
2343 West Clay Street
Kissimmee, FL 34741
(407) 518-5592
www.earthbalance.com



Figure 2. Waterward view of north end of trim zone.

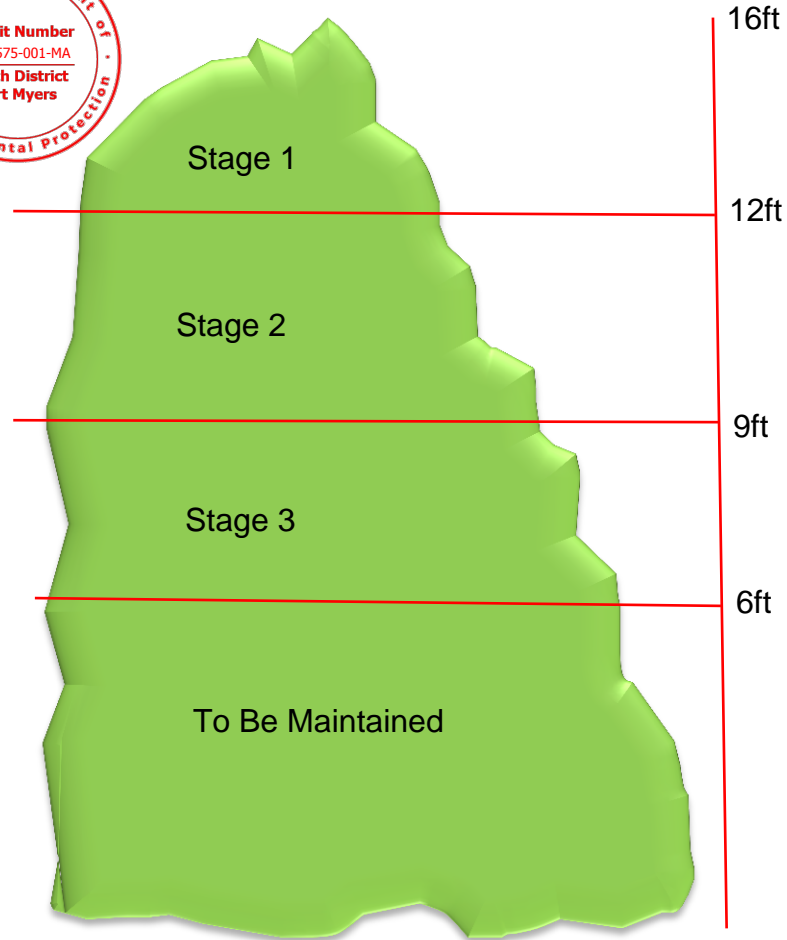


Figure 3. Representative Trimming Cross Section

Mangroves will be trimmed down in stages so that no more than 25% of the canopy is removed annually and maintained at a height no less than 6 feet.

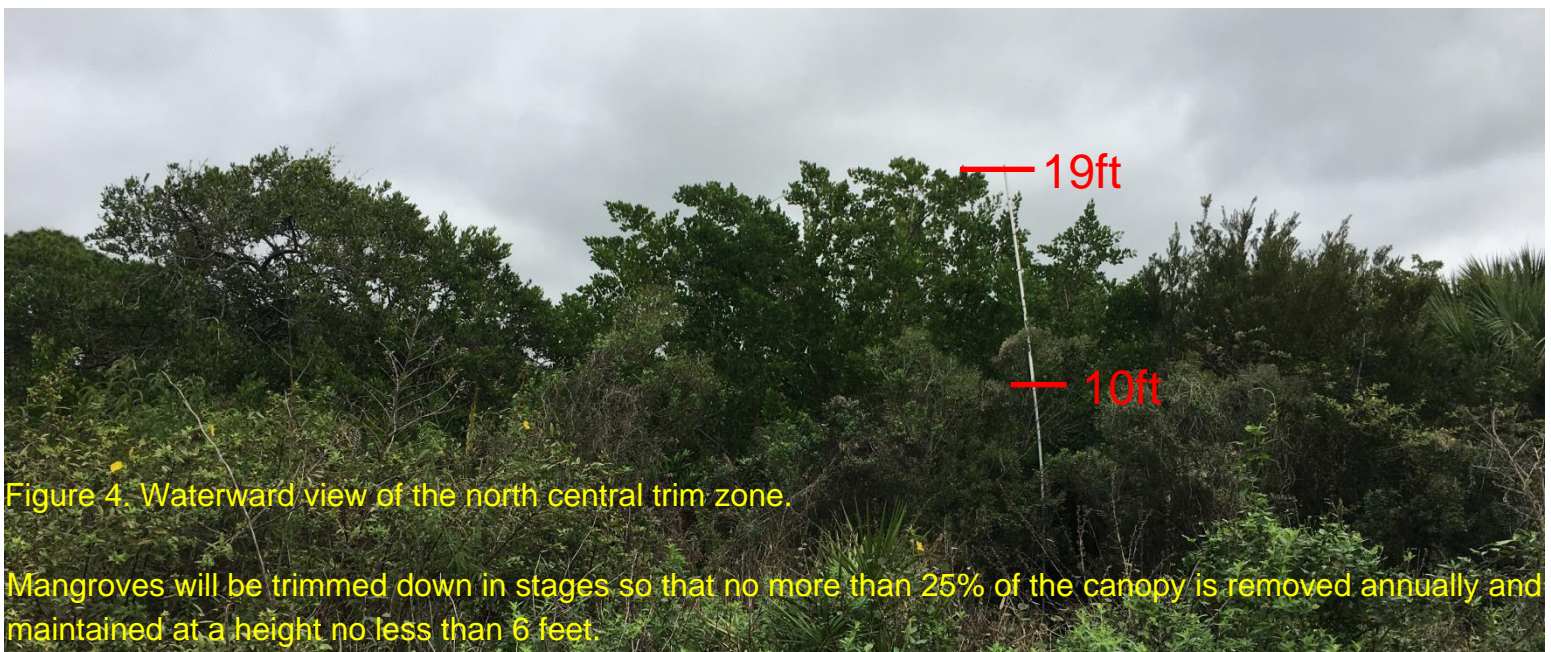


Figure 4. Waterward view of the north central trim zone.

Mangroves will be trimmed down in stages so that no more than 25% of the canopy is removed annually and maintained at a height no less than 6 feet.

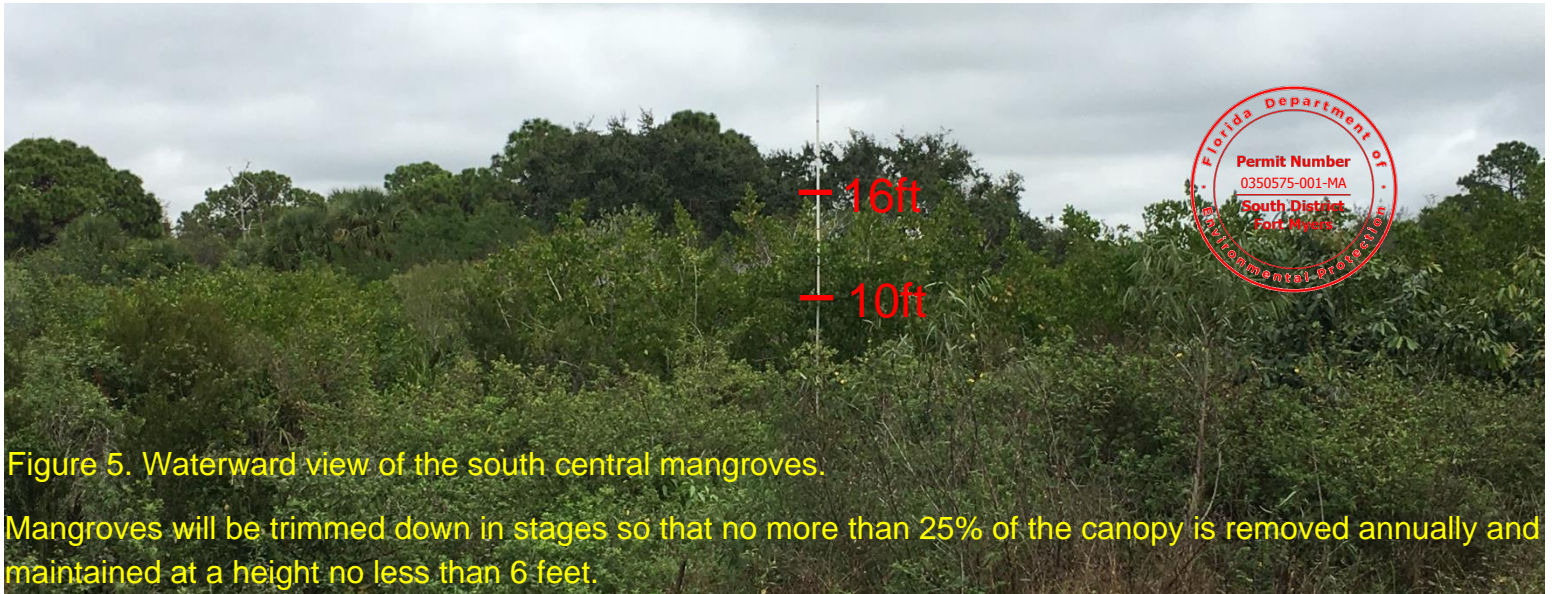


Figure 5. Waterward view of the south central mangroves.

Mangroves will be trimmed down in stages so that no more than 25% of the canopy is removed annually and maintained at a height no less than 6 feet.

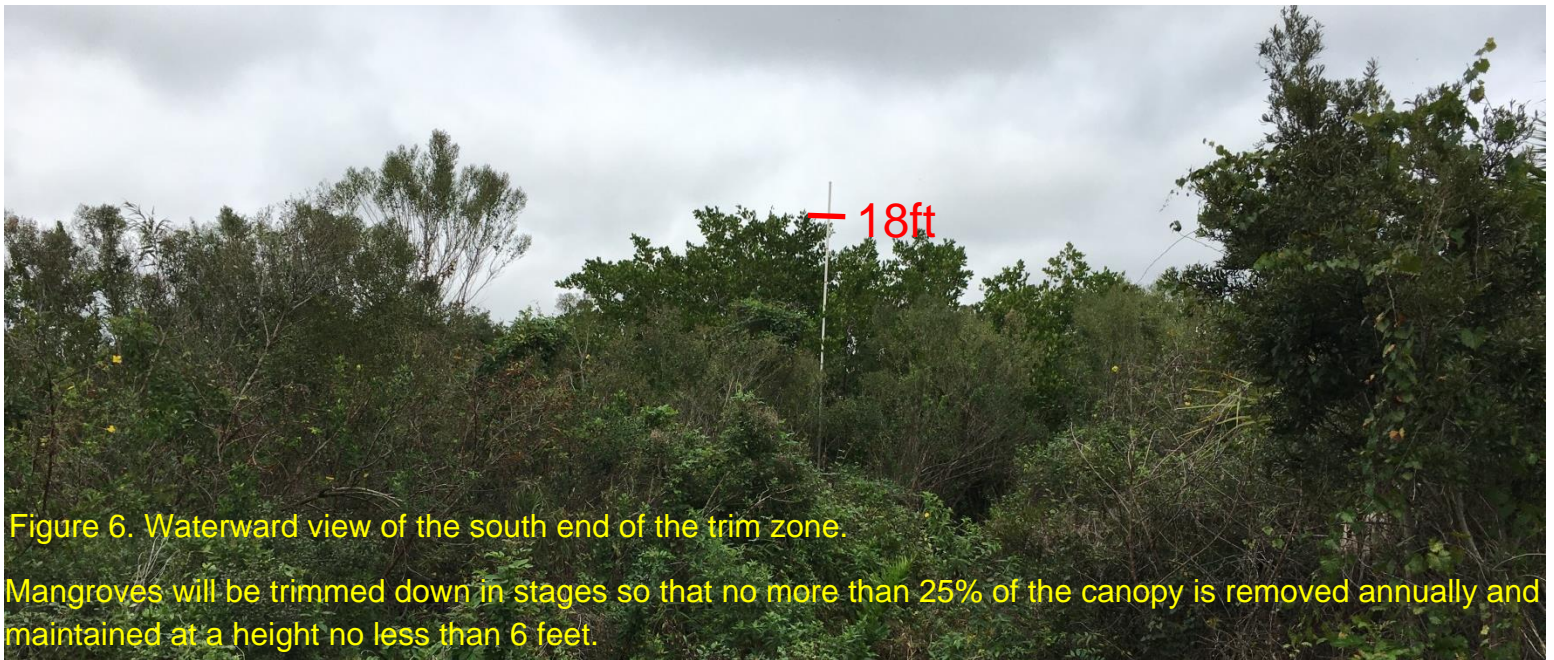


Figure 6. Waterward view of the south end of the trim zone.

Mangroves will be trimmed down in stages so that no more than 25% of the canopy is removed annually and maintained at a height no less than 6 feet.

Buffer Management Plan Policy

The Hammocks at Cape Haze

Goal: To establish community approved standards for the trimming and removal of vegetation within the buffer area.

Location: Please see Exhibit A for the Buffer coverage area.

Frequency of Maintenance Activities:

- Native upland trees (i.e., live oak, slash pine, etc.) as needed and not to exceed a frequency of one event per year.
- Non-native and/or nuisance shrubs, trees and grasses will be maintained (removal and herbicide treatment) by the selected vendor twice a year.

Means and Method:

The following maintenance activities are authorized within the Designated Buffer.

- Maintenance activities associated with native trees within the wetlands will only involve pruning of the branches and not in a manner detrimental to the health of the tree.
- No topping cuts are authorized for Oak trees and Pine Trees.
- Cutting the native shrubs will be conducted by hand pruning and not in a manner detrimental to its health. Native shrubs will not be cut or pruned below a height of 10 feet.
- Application of herbicide will be conducted by a licensed applicator and be consistent with any applicable rules, statutes, and regulations and only be used on non-native plant / tree species.
- Every effort will be made to maintain native plants species (trees, shrubs, and grasses).
- There will be no mechanical maintenance activities within the Buffer.
- Palm trees may be maintained at a horizontal (9 and 3) configuration.

Adopted March 18, 2019 – Master Association Board of Directors



PROPOSAL

Suncoast Environmental Group
 PO Box 10214
 BRADENTON, FL 34282
 (941) 753-0203

Wednesday, April 17, 2019

Hammocks Cape Haze Master Association
 Inc

Worksite:

c/o Sunstate Management Group, Inc
 PO Box 18809
 Sarasota, FL 34276
Phone:941-698-2989

c/o Sunstate Management Group, Inc
 Sarasota, FL 34276

Description	Cost
<p>Buffer preserve area: Proposal to trim the Wax Myrtle and Carolina Willow to a height of 10 feet. The current heights range from 8 to 30 feet on the two species being trimmed. The Palms, Oaks, and Pine trees are not part of this proposal. As the Oaks become taller you may want to trim the inner branches for views but no topping should ever happen to those trees, as listed in your adopted buffer plan.</p> <p>As a reminder, there are mangroves behind the buffer in the no trim area that are not able to be trimmed with the current permit.</p>	<p>\$3,400.00</p>

		Subtotal:	\$3,400.00
		Tax:	\$0.00
Signature _____	Date _____	Total:	\$3,400.00

We propose to provide the services in accordance with the above specifications for the sum of: \$ 3400 with payments to be made upon completion.

Acceptance of Proposal - The above prices, specifications and conditions are satisfactory and are hereby accepted. Suncoast Environmental Group, Inc. is authorized to do the work as specified with payments being made as stated above.

SAFETY DATA SHEET



ELEMENT™ 3A

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Corteva Agriscience™ encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container. This Safety Data Sheet adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. IDENTIFICATION

Product name : ELEMENT™ 3A

Manufacturer or supplier's details

COMPANY IDENTIFICATION

Manufacturer/importer : CORTEVA AGRISCIENCE LLC
9330 ZIONSVILLE RD
INDIANAPOLIS, IN, 46268-1053
UNITED STATES

Customer Information Number : 800-992-5994

E-mail address : customerinformation@corteva.com

Emergency telephone : INFOTRAC (CONTRACT 84224).
800-992-5994 or 317-337-6009

Recommended use of the chemical and restrictions on use

Recommended use : End use herbicide product

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids : Category 3
Eye irritation : Category 2A
Specific target organ toxicity - repeated exposure : Category 2 (Kidney)

GHS label elements

Hazard pictograms : 

Signal Word : Warning

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Hazard Statements : H226 Flammable liquid and vapor.
H319 Causes serious eye irritation.
H373 May cause damage to organs (Kidney) through prolonged or repeated exposure.

Precautionary Statements : **Prevention:**
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ eye protection/ face protection.

Response:
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314 Get medical advice/ attention if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Triclopyr Triethylamine Salt	57213-69-1	44.05
ethanol	64-17-5	>= 1 - < 3
Balance	Not Assigned	> 50

Actual concentration is withheld as a trade secret

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SECTION 4. FIRST AID MEASURES

- If inhaled : 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.
- In case of 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.
- In case of 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.
- If swallowed : Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : None known.
- Protection of first-aiders : 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.
- Notes to physician : No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : Do not use direct water stream.
High volume water jet
- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health. Vapors may form explosive mixtures with air. Do not allow run-off from firefighting to enter drains or water courses. Flash back possible over considerable distance.
- Hazardous combustion products : During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.

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Combustion products may include and are not limited to:
 Nitrogen oxides (NO_x)
 Hydrogen chloride gas
 Carbon oxides

- Specific extinguishing methods : Remove undamaged containers from fire area if it is safe to do so.
 Evacuate area.
 Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Further information : Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.
 Do not use a solid water stream as it may scatter and spread fire.
 Use a water spray to cool fully closed containers.
 Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
 Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.
 Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
 Remove all sources of ignition.
 Use personal protective equipment.
 Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
- Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.
 Discharge into the environment must be avoided.
 Prevent further leakage or spillage if safe to do so.
 Prevent spreading over a wide area (e.g., by containment or oil barriers).
 Retain and dispose of contaminated wash water.
 Local authorities should be advised if significant spillages cannot be contained.
 Prevent from entering into soil, ditches, sewers, underwater.
 See Section 12, Ecological Information.
- Methods and materials for containment and cleaning up : Clean up remaining materials from spill with suitable absorbent.
 Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in.
 For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped,
 Recovered material should be stored in a vented container.

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The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to over-pressurization of the container.
 Wipe up with absorbent material (e.g. cloth, fleece).
 Non-sparking tools should be used.
 Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
 Suppress (knock down) gases/vapors/mists with a water spray jet.
 See Section 13, Disposal Considerations, for additional information.

SECTION 7. HANDLING AND STORAGE

- | | | |
|-----------------------------|---|---|
| Local/Total ventilation | : | Use with local exhaust ventilation.
Use only in an area equipped with explosion proof exhaust ventilation. |
| Advice on safe handling | : | Avoid formation of aerosol.
Non-sparking tools should be used.
Provide sufficient air exchange and/or exhaust in work rooms.
Open drum carefully as content may be under pressure.
Do not breathe vapors/dust.
Do not smoke.
Handle in accordance with good industrial hygiene and safety practice.
Smoking, eating and drinking should be prohibited in the application area.
Avoid inhalation of vapor or mist.
Do not swallow.
Do not get in eyes.
Avoid contact with skin and eyes.
Avoid prolonged or repeated contact with skin.
Keep container tightly closed.
Keep away from heat and sources of ignition.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment. |
| Conditions for safe storage | : | Store in a closed container.
No smoking.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep in properly labeled containers.
Keep tightly closed.
Store in accordance with the particular national regulations. |
| Materials to avoid | : | Strong oxidizing agents
Organic peroxides
Flammable solids
Pyrophoric liquids
Self-heating substances and mixtures
Substances and mixtures which in contact with water emit |

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flammable gases
 Explosives
 Gases

Packaging material : Unsuitable material: None known.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Triclopyr Triethylamine Salt	57213-69-1	TWA	2 mg/m3	Dow IHG
ethanol	64-17-5	STEL	1,000 ppm	ACGIH
		TWA	1,000 ppm 1,900 mg/m3	OSHA Z-1
triethylamine	121-44-8	TWA	1 ppm	Dow IHG
		STEL	3 ppm	Dow IHG
		TWA	0.5 ppm	ACGIH
		STEL	1 ppm	ACGIH
		TWA	25 ppm 100 mg/m3	OSHA Z-1

Engineering measures : 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.

Personal protective equipment

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.

Hand protection

Remarks : 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), poten-

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Eye protection : Use chemical goggles.
Skin and body protection : Wear clean, body-covering clothing.
tial body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid.

Color : Pink to purple

Odor : Ammoniacal

Odor Threshold : No data available

pH : 9.54 (69.4 °F / 20.8 °C)
Concentration: 10 %
Method: pH Electrode

Melting point/range : Not applicable to liquids

Freezing point : No data available

Boiling point/boiling range : No data available

Flash point : 109 °F / 43 °C
Method: Setaflash Closed Cup ASTM D3828, closed cup

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Flammability (liquids) : Not expected to be a static-accumulating flammable liquid.

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : No data available

Relative vapor density : No data available

Density : 1.1385 g/cm³ (68 °F / 20 °C)
Method: Digital density meter

Solubility(ies)
Water solubility : Soluble

Autoignition temperature : No data available

Viscosity

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Viscosity, dynamic : 12.5 mPa.s (77 °F / 25 °C)

Explosive properties : No
Method: Thermal
GLP: yes

Oxidizing properties : No significant increase (>5C) in temperature.

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.

Chemical stability : No decomposition if stored and applied as directed.
Stable under normal conditions.

Possibility of hazardous reactions : Stable under recommended storage conditions.
No hazards to be specially mentioned.
Vapors may form explosive mixture with air.
May form explosive dust-air mixture.

Conditions to avoid : Heat, flames and sparks.

Incompatible materials : Acids

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:
Nitrogen oxides (NOx)
Hydrogen chloride gas
Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity : LD50 (Rat, female): 4,100 mg/kg
Method: OECD Test Guideline 425

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.4 mg/l
Exposure time: 4 h
Test atmosphere: Mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Symptoms: No deaths occurred at this concentration.
Remarks: Maximum attainable concentration.

Acute dermal toxicity : LD50 (Rabbit, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 402

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Components:**Triclopyr Triethylamine Salt:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 2.6 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Maximum achievable concentration.

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

ethanol:

Acute oral toxicity : LD50 (Rat): > 7,000 mg/kg
LDLo (human): 1,400 mg/kg

Acute inhalation toxicity : LC50 (Rat): 124.7 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): > 15,800 mg/kg

Skin corrosion/irritation**Product:**

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Components:**ethanol:**

Species : Rabbit
Result : No skin irritation

Serious eye damage/eye irritation**Product:**

Species : Rabbit
Result : Eye irritation
Method : OECD Test Guideline 405

Components:**Triclopyr Triethylamine Salt:**

Result : Eye irritation

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ethanol:

Species : Rabbit
Result : Eye irritation

Respiratory or skin sensitization**Product:**

Test Type : Local lymph node assay
Species : Mouse
Assessment : Does not cause skin sensitization.
Method : OECD Test Guideline 429

Components:**Triclopyr Triethylamine Salt:**

Remarks : Did not demonstrate the potential for contact allergy in mice.
Remarks : For respiratory sensitization:
No relevant data found.

ethanol:

Species : Guinea pig
Assessment : Does not cause skin sensitization.

Germ cell mutagenicity**Components:****Triclopyr Triethylamine Salt:**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative.

ethanol:

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

Carcinogenicity**Components:****Triclopyr Triethylamine Salt:**

Carcinogenicity - Assessment : For similar active ingredient(s), Triclopyr., Did not cause cancer in laboratory animals.

ethanol:

Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects., Ethanol when not consumed in an alcoholic beverage is not classifiable as a human carcinogen., Epidemiology studies provide evidence that drinking of alcoholic beverages (containing ethanol) is associated with cancer, and IARC has classified alcoholic beverages as carcinogenic to humans.

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IARC Group 1: Carcinogenic to humans
ethanol 64-17-5

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Components:

Triclopyr Triethylamine Salt:

Reproductive toxicity - Assessment : 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. Has been toxic to the fetus in laboratory animals at doses toxic to the mother., Did not cause birth defects in laboratory animals.

ethanol:

Reproductive toxicity - Assessment : Animal testing did not show any effects on fertility. Has caused birth defects in lab animals at high doses.

STOT-single exposure

Product:

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

Components:

Triclopyr Triethylamine Salt:

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

ethanol:

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

STOT-repeated exposure

Product:

Assessment : Evaluation of available data suggests that this material is not an STOT-RE toxicant.

Components:

Triclopyr Triethylamine Salt:

Target Organs : Kidney

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Assessment : May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

Triclopyr Triethylamine Salt:

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

Aspiration toxicity

Product:

Based on physical properties, not likely to be an aspiration hazard.

Components:

Triclopyr Triethylamine Salt:

Based on available information, aspiration hazard could not be determined.

ethanol:

Based on physical properties, not likely to be an aspiration hazard.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 400 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203 or Equivalent

LC50 (Lepomis macrochirus (Bluegill sunfish)): > 100 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (eastern oyster (Crassostrea virginica)): 56 - 87 mg/l
Exposure time: 48 h
Test Type: static test
Method: Method Not Specified.

LC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : Remarks: Based on information for a similar material:

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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)): 107 mg/l

End point: Growth rate inhibition

Exposure time: 72 h

Method: OECD Test Guideline 201 or Equivalent

ErC50 (blue-green alga *Anabaena flos-aquae*): > 100 mg/l

End point: Growth inhibition

Exposure time: 72 h

EC50 (*Lemna gibba*): > 100 mg/l

End point: Growth inhibition

Exposure time: 7 d

ErC50 (*Myriophyllum spicatum*): 0.241 mg/l

Exposure time: 14 d

Remarks: Based on information for a similar material:

NOEC (*Myriophyllum spicatum*): 0.0191 mg/l

Exposure time: 14 d

Remarks: Based on information for a similar material:

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Components:

Triclopyr Triethylamine Salt:

Toxicity to fish : Remarks: For similar material(s):

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).

LC50 (*Cyprinus carpio* (Carp)): 350 mg/l

Exposure time: 96 h

LC50 (*Lepomis macrochirus* (Bluegill sunfish)): > 100 mg/l

Exposure time: 96 h

Test Type: semi-static test

Toxicity to daphnia and other aquatic invertebrates : EC50 (eastern oyster (*Crassostrea virginica*)): 56 - 87 mg/l

Exposure time: 48 h

Test Type: static test

EC50 (*Daphnia magna* (Water flea)): > 448 mg/l

Exposure time: 48 h

Test Type: static test

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Toxicity to algae/aquatic plants : ErC50 (*Pseudokirchneriella subcapitata* (green algae)): 107 mg/l
End point: Growth rate inhibition
Exposure time: 72 h

ErC50 (blue-green alga *Anabaena flos-aquae*): > 100 mg/l
Exposure time: 72 h
Test Type: Growth inhibition

EC50 (*Lemna gibba*): > 1,000 mg/l
Exposure time: 7 d
Test Type: Growth inhibition

ErC50 (*Myriophyllum spicatum*): 0.241 mg/l
Exposure time: 14 d
Remarks: For similar material(s):

NOEC (*Myriophyllum spicatum*): 0.0191 mg/l
Exposure time: 14 d
Remarks: For similar material(s):

Toxicity to terrestrial organisms : Remarks: Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm)., Material is moderately toxic to birds on an acute basis (LD50 between 51 and 500 mg/kg).

oral LD50 (*Colinus virginianus* (Bobwhite quail)): 300 mg/kg bodyweight.

dietary LC50 (*Colinus virginianus* (Bobwhite quail)): 11622 mg/kg diet.

contact LD50 (*Apis mellifera* (bees)): > 100 µg/bee
Exposure time: 48 h

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

ethanol:

Toxicity to fish : LC50 (*Oncorhynchus mykiss* (rainbow trout)): 11,200 - 13,000 mg/l
Exposure time: 96 h
Test Type: flow-through test
Method: Method Not Specified.

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 5,414 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : EbC50 (*Skeletonema costatum* (marine diatom)): 10,943 - 11,619 mg/l
End point: Biomass
Exposure time: 5 d

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Method: OECD Test Guideline 201 or Equivalent

Persistence and degradability**Components:****Triclopyr Triethylamine Salt:**

Biodegradability : Remarks: For similar active ingredient(s).
Triclopyr.
Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).

Remarks: 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 : Result: Readily biodegradable.
Biodegradation: > 70 %
Exposure time: 5 d
Method: OECD Test Guideline 301D or Equivalent
Remarks: 10-day Window: Pass

ThOD : 2.08 kg/kg

Photodegradation : Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Rate constant: 3.58E-12 cm³/s
Method: Estimated.

Bioaccumulative potential**Components:****Triclopyr Triethylamine Salt:**

Partition coefficient: n-octanol/water : Remarks: For similar active ingredient(s).
Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

ethanol:

Partition coefficient: n-octanol/water : log Pow: -0.31
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Balance:

Partition coefficient: n-octanol/water : Remarks: No relevant data found.

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Mobility in soil

Components:

Triclopyr Triethylamine Salt:

Distribution among environmental compartments : Remarks: For similar active ingredient(s). Potential for mobility in soil is very high (Koc between 0 and 50).

ethanol:

Distribution among environmental compartments : Koc: 1.0
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

Balance:

Distribution among environmental compartments : Remarks: No relevant data found.

Other adverse effects

Components:

Triclopyr Triethylamine Salt:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

ethanol:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Balance:

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : 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.

SAFETY DATA SHEET



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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

International Regulations

UNRTDG

UN number : UN 1993
Proper shipping name : FLAMMABLE LIQUID, N.O.S.
(Triclopyr Triethylamine Salt, Ethanol)
Class : 3
Packing group : III
Labels : 3

IATA-DGR

UN/ID No. : UN 1993
Proper shipping name : Flammable liquid, n.o.s.
(Triclopyr Triethylamine Salt, Ethanol)
Class : 3
Packing group : III
Labels : Flammable Liquids
Packing instruction (cargo aircraft) : 366
Packing instruction (passenger aircraft) : 355

IMDG-Code

UN number : UN 1993
Proper shipping name : FLAMMABLE LIQUID, N.O.S.
(Triclopyr Triethylamine Salt, Ethanol)
Class : 3
Packing group : III
Labels : 3
EmS Code : F-E, S-E
Marine pollutant : yes
Remarks : Stowage category A

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number : UN 1993
Proper shipping name : Flammable liquids, n.o.s.
(Triclopyr Triethylamine Salt, Ethanol)
Class : 3

SAFETY DATA SHEET



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Version 1.0 Revision Date: 01/26/2022 SDS Number: 800080003113 Date of last issue: -
Date of first issue: 01/26/2022

Packing group : III
Labels : FLAMMABLE LIQUID
ERG Code : 128
Marine pollutant : no

Further information

Above applies only to containers over 119 gallons or 450 liters. Not regulated if shipped in packages less than or equal to 119 gallons (450 liters). If transporting by vessel or aircraft, unless other means of transportation is impracticable, then the product must be shipped as a flammable liquid.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
Specific target organ toxicity (single or repeated exposure)
Serious eye damage or eye irritation

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Triclopyr Tri-ethylamine Salt	57213-69-1	>= 30 - < 50 %
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US State Regulations

Pennsylvania Right To Know

ethanol 64-17-5

California Prop. 65

WARNING: This product can expose you to chemicals including ethanol, ethylene oxide, propylene oxide, which is/are known to the State of California to cause cancer, and ethanol, 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.

The ingredients of this product are reported in the following inventories:

TSCA : Product contains substance(s) not listed on TSCA inventory.

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

Federal Insecticide, Fungicide and Rodenticide Act

EPA Registration Number : 62719-037

SAFETY DATA SHEET



ELEMENT™ 3A

Version 1.0 Revision Date: 01/26/2022 SDS Number: 800080003113 Date of last issue: -
Date of first issue: 01/26/2022

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

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

Full text of other abbreviations

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
ACGIH / TWA : 8-hour, time-weighted average
ACGIH / STEL : Short-term exposure limit
Dow IHG / TWA : Time Weighted Average (TWA):
Dow IHG / STEL : Short term exposure limit
Dow IHG / TWA : Time weighted average
OSHA Z-1 / TWA : 8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); EC_x - Concentration associated with x% response; EHS - Extremely Hazardous Substance; EL_x - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErC_x - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC₅₀ - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC₅₀ - Lethal Concentration to 50 % of a test population; LD₅₀ - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New

SAFETY DATA SHEET



ELEMENT™ 3A

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	01/26/2022	800080003113	Date of first issue: 01/26/2022

Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date : 01/26/2022

Product code: XRM-3724

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

US / EN

Issue Date 28-Jan-2015

Revision Date 29-Jan-2020

Version 6

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier.

Product Name Hi-Dep® IVM Broadleaf Herbicide

Other means of identification

Product Code PBI FP 808-8

EPA Pesticide Registration Number 2217-703

Recommended use of the chemical and restrictions on use

Recommended Use Herbicide

Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Address

PBI-Gordon Corporation
P.O. Box 860350
Shawnee, KS 66286

Company Name

PBI-Gordon Corporation
P.O. Box 860350
Shawnee, KS 66286

Manufacturer

PBI-Gordon Corporation
P.O. Box 860350
Shawnee, KS 66286

Emergency telephone number

24 Hour Emergency Phone Number Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute Oral Toxicity	Category 4
Serious eye damage/eye irritation	Category 1
Carcinogenicity	Category 2
Chronic Aquatic Toxicity	Category 2
Flammable liquids	Category 3

Label elements

Emergency Overview

Signal word

Danger

Hazard statements

- Harmful if swallowed
- Causes serious eye damage
- Suspected of causing cancer
- Toxic to aquatic life with long lasting effects
- Flammable liquid and vapor



Appearance Liquid

Physical state Liquid

Odor Amines

Precautionary Statements - Prevention

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Wear protective gloves/protective clothing/eye protection/face protection

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

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

Use only outdoors or in a well-ventilated area

Contaminated work clothing must not be allowed out of the workplace

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Keep container tightly closed

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Immediately call a POISON CENTER or doctor

Call a POISON CENTER or doctor if you feel unwell

If skin irritation or rash occurs: Get medical advice/attention

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower

Wash contaminated clothing before reuse

IF INHALED: Remove person to fresh air and keep comfortable for breathing

IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell

Rinse mouth

In case of fire: Use CO₂, dry chemical, or foam to extinguish

Precautionary Statements - Storage

Store locked up

Store in a well-ventilated place. Keep cool

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Have the product label with you when calling a poison control center or doctor or going in for treatment. You may also contact 1-877-800-5556 for emergency medical treatment advice.

The low flash point of this product is due to a minor component in the mixture. Based on independent laboratory testing of similar products, this product would not sustain combustion as specified in DOT Regulation 49 CFR 173 Appendix H; however OSHA HCS 2012 flammable classifications are solely based on tested mixture flash points and boiling points.

Other information

Not applicable.

3. COMPOSITION/INFORMATION ON INGREDIENTS**Substance**

Not applicable.

Mixture

Chemical name	CAS-No	Weight-%
2,4-D, dimethylamine salt	2008-39-1	33.2
Diethanolamine Salt of 2,4-dichlorophenoxyacetic acid	5742-19-8	16.3
Trade Secret	Trade secret	0-1*
Trade Secret	Trade secret	0-1*

* The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES**Description of first aid measures**

General advice	IF exposed or concerned: Get medical advice/attention.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. If symptoms persist, call a physician.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.
Inhalation	Remove to fresh air. If symptoms persist, call a physician.
Ingestion	Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Call a physician.
Self-protection of the first aider	Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing.

Most important symptoms and effects, both acute and delayed

Symptoms No information available

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically. Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media Dry chemical. Carbon dioxide (CO₂). Water spray. Alcohol resistant foam.

Unsuitable extinguishing media No information available.

Specific hazards arising from the chemical In the event of fire and/or explosion do not breathe fumes. Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Special protective equipment for fire-fighters 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 Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Do not touch or walk through spilled material.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so Prevent product from entering drains Do not flush into surface water or sanitary sewer system See Section 12 for additional ecological information Avoid release to the environment Collect spillage Dispose of contents/container to an approved waste disposal plant

Other information Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Do not touch or walk through spilled material. Dike far

ahead of spill to collect runoff water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up

Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling**Advice on safe handling**

Use personal protection equipment. Avoid breathing vapors or mists. Use according to package label instructions. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities**Storage Conditions**

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers. Keep out of the reach of children. Keep from freezing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters**Exposure Limits**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
2,4-D, dimethylamine salt 2008-39-1	TWA: 10 mg/m ³ inhalable fraction S*	TWA: 10 mg/m ³	IDLH: 10 mg/m ³ , TWA: 10 mg/m ³
Trade Secret	STEL: 15 ppm TWA: 5 ppm	TWA: 10 ppm TWA: 18 mg/m ³ (vacated) TWA: 10 ppm (vacated) TWA: 18 mg/m ³	IDLH: 500 ppm TWA: 10 ppm TWA: 18 mg/m ³
Trade Secret	TWA: 1 mg/m ³ inhalable fraction and vapor S*	(vacated) TWA: 3 ppm (vacated) TWA: 15 mg/m ³	TWA: 3 ppm TWA: 15 mg/m ³

Other Information

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls**Engineering controls**

Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Tight sealing safety goggles.

Hand protection

Chemical resistant gloves.

Skin and body protection

Wear long-sleeved shirt, long pants, socks and shoes.

Respiratory protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General hygiene considerations

Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Liquid
Color	Amber
Odor	Amines
Odor threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	8.0	
Melting point/freezing point	<5 °F	
Boiling point / boiling range	110 °C / 230 °F	
Flash point	44 °C / 111 °F	
Evaporation rate	< 1	
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Vapor pressure	<17 mm Hg	
Vapor density	>1	
Specific Gravity	1.1865	
Water solubility	Soluble in water	
Solubility in other solvents	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known

Other Information

Liquid Density	9.881 pounds/gallon
Bulk density	No information available

10. STABILITY AND REACTIVITY

Reactivity

No information available.

Stability

Stable under recommended storage conditions

Possibility of hazardous reactions

None under normal processing.

Hazardous polymerization

Will not occur.

Conditions to avoid

Keep out of reach of children.

Incompatible materials

Strong acids. Strong bases. Strong oxidizing agents.

Hazardous decomposition products

May emit toxic fumes under fire conditions. Hydrogen chloride. Nitrogen oxides (NOx). Carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	May cause irritation.
Eye contact	Causes serious eye damage.
Skin contact	May cause irritation.
Ingestion	Harmful if swallowed.

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
2,4-D, dimethylamine salt 2008-39-1	= 625 mg/kg (Rat)	= 2115 mg/kg (Rabbit)	-
Trade Secret	= 698 mg/kg (Rat)	= 3900 mg/kg (Rat)	= 4540 ppm (Rat) 6 h
Trade Secret	= 620 µL/kg (Rat) = 780 mg/kg (Rat)	= 11.9 mL/kg (Rabbit) = 7640 µL/kg (Rabbit)	-

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms	No information available.
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Acute toxicity**Numerical measures of toxicity - Product Information****Unknown Toxicity**

62 % of the mixture consists of ingredient(s) of unknown toxicity

LD50 Oral	= 1545 mg/kg (rat)
LD50 Dermal	> 2000 mg/kg (rabbit)
LC50 Inhalation (DUST)	> 2.04 mg/L (4 Hr.) Rat

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

Skin corrosion/irritation	May cause skin irritation.
Serious eye damage/eye irritation	Risk of serious damage to eyes.
Respiratory or skin sensitization	Not a skin sensitizer.
Germ cell mutagenicity	No information available.

Carcinogenicity The International Agency for Research on Cancer (IARC) lists chlorophenoxy herbicides in its Group 2B (limited evidence for Carcinogenicity in humans.) The US EPA has given the chlorophenoxy Herbicides 2,4-D, 2,4-DP, MCP, and MCPA a Class D classification (not classifiable as to human carcinogenicity.) More current 2,4-D lifetime feeding studies in rats and mice did not show carcinogenic effects and a recent World Health Organization (WHO) review of 2,4-D toxicology has concluded that 2,4-D is not a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
2,4-D, dimethylamine salt 2008-39-1	-	Group 2B	-	-
Diethanolamine Salt of 2,4-dichlorophenoxyacetic acid 5742-19-8	-	Group 2B	-	-
Trade Secret	A3	Group 2B	-	X

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Group 2B - Possibly Carcinogenic to Humans

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Target Organ Effects	Central nervous system, Eyes, Respiratory system, Skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity Toxic to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Trade Secret	9: 96 h Pseudokirchneriella subcapitata mg/L EC50	210: 96 h Poecilia reticulata mg/L LC50 static 111 - 125: 96 h Oncorhynchus mykiss mg/L LC50 120: 96 h Oncorhynchus mykiss mg/L LC50 static 127 - 349: 96 h Poecilia reticulata mg/L LC50 semi-static 396: 96 h Brachydanio rerio mg/L LC50 static	EC50 = 26.8 mg/L 15 min	88.7: 48 h Daphnia magna Straus mg/L EC50
Trade Secret	2.1 - 2.3: 96 h Pseudokirchneriella subcapitata mg/L EC50 7.8: 72 h Desmodesmus subspicatus mg/L EC50	1200 - 1580: 96 h Pimephales promelas mg/L LC50 static 4460 - 4980: 96 h Pimephales promelas mg/L LC50 flow-through 600 - 1000: 96 h Lepomis macrochirus mg/L LC50 static	EC50 = 73 mg/L 5 min EC50 > 16 mg/L 16 h	55: 48 h Daphnia magna mg/L EC50

Persistence and degradability No information available.

Bioaccumulation No information available.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Should not be released into the environment. Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging Do not reuse empty containers.

US EPA Waste Number D001, See Section 2: Hazards not otherwise classified (HNOC).

14. TRANSPORT INFORMATION

Note: Products under 30 gallons not regulated by DOT. Below are designations for products over 30 gallons. See RQ

DOT

UN/ID no.

UN3082

Proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Hazard class	9
Packing group	III
Reportable Quantity (RQ)	2,4-D, dimethylamine salt: RQ (lb)= 301.00=30 gallons
Special Provisions	8, 146, 173, 335, IB3, T4, TP1, TP29
Description	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III, Marine pollutant

TDG

UN/ID no.	UN3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Hazard class	9
Packing group	III
Description	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III

MEX

UN/ID no.	UN3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Hazard class	9
Special Provisions	274, 331, 335
Packing group	III
Description	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III

ICAO (air)

UN/ID no.	UN3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Hazard class	9
Packing group	III
Special Provisions	A97, A158, A197
Description	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III

IATA

	Limited quantity applies with an inner packaging less than 5 L or gross package weight less than 30 kg.
UN number	UN3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport hazard class(es)	9
Packing group	III
Special Provisions	A97, A158, A197
Description	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, dimethylamine salt), 9, III

IMDG

	Limited quantity applies with an inner packaging less than 5 L or gross package weight less than 30 kg.
UN number	UN3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Transport hazard class(es)	9
Packing group	III
EmS-No.	F-A, S-F
Special Provisions	274, 335, 969
Description	UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D, DIMETHYLAMINE SALT), 9, III, MARINE POLLUTANT

15. REGULATORY INFORMATION

U.S. EPA Label Information**EPA Pesticide Registration Number** 2217-703**Federal Insecticide, Fungicide, Rodenticide Act Regulations**

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:

EPA Pesticide Label

Danger. Keep out of the reach of children.

Hazards to Humans and Domestic Animals:

Danger. Corrosive. Causes irreversible eye damage. Harmful if swallowed. Harmful if absorbed through skin. Harmful if inhaled. Do not get in eyes or on clothing. Avoid contact with skin. Avoid breathing spray mist or vapor. Environmental Hazards: This pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment wash waters or rinsate. This chemical has properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Application around a cistern or well may result in contamination of drinking water or groundwater.

International Inventories

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

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Chemical name	SARA 313 - Threshold Values %
Trade Secret -	1.0

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Trade Secret	1000 lb	-	-	X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
2,4-D, dimethylamine salt 2008-39-1	100 lb	-
Diethanolamine Salt of 2,4-dichlorophenoxyacetic acid 5742-19-8	100 lb	-

Trade Secret	1000 lb	-
Trade Secret	100 lb	-

US State Regulations

U.S. State Right-to-Know Regulations

US State Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Trade Secret	X	-	X
Trade Secret	X	X	X
Trade Secret	X	X	X

16. OTHER INFORMATION

NFPA	Health hazards 3	Flammability 1	Instability 0	Physical and Chemical Properties -
HMIS	Health hazards 3 *	Flammability 1	Physical hazards 0	Personal protection X
<i>Chronic Hazard Star Legend</i>	<i>* = Chronic Health Hazard</i>			

Disclaimer

The information provided in this Material Safety Data Sheet is correct to the best of PBI Gordon Corporation's knowledge, information and belief at the date of this publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any other process, unless specified in the text. PBI GORDON CORPORATION MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. Given the variety of factors that can affect the use and application of this product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the product to determine whether it is fit for a particular purpose and suitable for user's method of use or application. Each user is also responsible for evaluating the conditions of use and designing the appropriate protective mechanisms to prevent employee exposures, property damage, or release to the environment. PBI Gordon Corporation assumes no responsibility for injury to the recipient or third persons, or for any damage to any property resulting from misuse of the product.

End of Safety Data Sheet



1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Aquaneat Aquatic Herbicide
EPA Reg. No.: 228-365
Product Type: Herbicide
Company Name: Nufarm Americas Inc.
 11901 S. Austin Avenue
 Alsip, IL 60803
 1-800-345-3330
Telephone Numbers: For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,
 Call CHEMTREC Day or Night: 1-800-424-9300
 For Medical Emergencies Only, Call 1-877-325-1840

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

2. HAZARDS IDENTIFICATION

PHYSICAL HAZARDS:

Not Hazardous

HEALTH HAZARDS:

Not Hazardous

ENVIRONMENTAL HAZARDS

Hazardous to aquatic environment, acute	Category 2
Hazardous to aquatic environment, chronic	Category 2

SIGNAL WORD

None

HAZARD STATEMENTS:

Toxic to aquatic life with long lasting effects.



PRECAUTIONARY STATEMENTS

Avoid release to the environment.

Collect spillage.

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

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NO.	% BY WEIGHT
N-(phosphonomethyl)glycine, Isopropylamine salt	38641-94-0	52.2 – 55.4
Other Ingredients	Trade Secret	Trade Secret

Synonyms: Mixture containing Glyphosate IPA salt; N-(phosphonomethyl) glycine, in the form of its isopropylamine salt.

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

4. FIRST AID MEASURES

If in Eyes: Hold eye open and rinse slowly and gently with water. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention if irritation develops and persists.

If on Skin or Clothing: Take off contaminated clothing. Wash with soap and water. Get medical attention if irritation develops and persists.

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

If Swallowed: Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person. If symptoms develop, get medical advice.

Most Important symptoms/effects, acute and delayed: None expected. May cause mild eye irritation.

Indication of Immediate medical attention and special treatment if needed: None expected. For ingestion there is no specific antidote available. Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Recommended for large fires: foam or water spray. Recommended for small fires: dry chemical or carbon dioxide.

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

Unusual Fire and Explosion Hazards: If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later. This product reacts with galvanized steel or unlined steel (except stainless steel) to produce hydrogen gas that may form a highly combustible gas mixture which could flash or explode.

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

6. ACCIDENTAL RELEASE MEASURES

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

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

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

Methods for Cleanup and Disposal: Pump any free liquid into an appropriate closed container. Collect washings for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

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

7. HANDLING AND STORAGE**Handling:**

Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove Personal Protective Equipment (PPE) immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

Storage:

STORE ABOVE 32° F (0° C) TO KEEP PRODUCT FROM CRYSTALLIZING. Crystals will settle to the bottom. If allowed to crystallize, warm to 68° F (20° C) and mix well or recirculate to redissolve before using. Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

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

Personal Protective Equipment:

Eye/Face Protection: To avoid contact with eyes, wear goggles or safety glasses with front, brow and temple protection. Washing facilities should be readily accessible to the work area.

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

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

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

Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
Glyphosate IPA	NE	NE	NE	NE	
Other Ingredients	NE	NE	NE	NE	

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear green or yellow tinted liquid
Odor:	Odorless
Odor threshold:	No data available
pH:	4.82 (1% dilution w/w in DIW @ 24° C)
Melting point/freezing point:	No data available
Initial boiling point and boiling range	No data available
Flash point:	Not applicable due to aqueous formulation
Evaporation rate:	Not applicable
Flammability (solid, gas):	Not applicable
Upper/lower flammability or explosive limits:	Not applicable
Vapor pressure:	No data available (mixture)
Vapor density:	No data available
Relative density:	1.21 g/mL @ 20° C
Solubility(ies):	No data available
Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	67.9 cPs @ 20° C, 29.8 cPs @ 20° C
VOC Emission Potential (%):	0.00

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

10. STABILITY AND REACTIVITY

Reactivity: Corrosive to mild steel, reaction with galvanized steel or unlined steel may produce hydrogen gas.

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

Possibility of Hazardous Reactions: Will not occur.

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

Incompatible Materials: This product reacts with galvanized steel or unlined steel (except stainless steel) to produce hydrogen gas that may form a highly combustible gas mixture which could flash or explode.

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

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Eye contact, Skin contact

Symptoms of Exposure: Minimally irritating to the eye based on toxicity studies. Slightly toxic and non-irritating to the skin based on toxicity studies. Low inhalation toxicity. Inhalation of mists may cause coughing and sneezing. Slightly toxic if ingested based on toxicity studies. No significant adverse health effects are expected to develop if only small amounts (less than a mouthful) are swallow

Delayed, immediate and chronic effects of exposure: None known

Toxicological Data:

Data from laboratory studies on this product are summarized below:

Oral: Rat LD₅₀: >5,000 mg/kg

Dermal: Rat LD₅₀: >5,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >2.07 mg/l (no mortality at highest dose tested)

Eye Irritation: Rabbit: Minimally irritating

Skin Irritation: Rabbit: Non-irritating

Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Subchronic (Target Organ) Effects: Repeated overexposure to glyphosate may decrease body weight gains and effects to liver.

Carcinogenicity / Chronic Health Effects: Prolonged overexposure to glyphosate may cause effects to the liver. EPA has given glyphosate a Group E classification (evidence of non-carcinogenicity in humans). Canada PMRA has classified glyphosate as non-carcinogenic. In 2015, IARC classified glyphosate as a probable human carcinogen Group 2A based on limited human evidence and some evidence in animals.

Reproductive Toxicity: In laboratory animal studies with glyphosate, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Developmental Toxicity: In animal studies, glyphosate did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother.

Genotoxicity: Glyphosate has produced no genetic changes in a variety of standard tests using animals and animal or bacterial cells.

ASSESSMENT CARCINOGENICITY:

Component	Regulatory Agency Listing As Carcinogen			
	ACGIH	IARC	NTP	OSHA
Glyphosate IPA Salt	No	2A	No	No
Other Ingredients	No	No	No	No

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Data on Glyphosate IPA

96-hour LC₅₀ Rainbow Trout: >1000 mg/l

48-hour EC₅₀ Daphnia: 930 mg/l

72-hour ErC₅₀ Algae: 166 mg/l

Data on Glyphosate Acid:

96-hour LC₅₀ Bluegill: 120 mg/l

96-hour LC₅₀ Rainbow Trout: 786 mg/l

48-hour EC₅₀ Daphnia: 780 mg/l

96-hour EC₅₀ Diatoms: 1.3 mg/l

14-day EC₅₀ Duckweed: 25.5 mg/l

72-hour EC₅₀ Algae: 450 mg/l

Bobwhite Quail Acute Oral LD₅₀: >3,851 mg/kg

Bobwhite Quail 5-day Dietary LC₅₀: >4,640 ppm

Mallard Duck 5-day Dietary LC₅₀: >4,640 ppm

Environmental Fate:

In the environment glyphosate adsorbs strongly to soil and is expected to be immobile in soil. Glyphosate is readily degraded by soil microbes to AMPA (aminomethyl phosphonic acid) that is further degraded to carbon dioxide. Glyphosate and AMPA are unlikely to enter ground water due to their strong adsorptive characteristics. Terrestrially-applied glyphosate has the potential to move into surface waters through soil erosion because it may be adsorbed to soil particles suspended in the runoff. Aquatic applications registered for certain formulations may also result in glyphosate entering surface waters. Complete degradation is slow, but dissipation in water is rapid because glyphosate is bound in sediments and has low biological availability to aquatic organisms. These

characteristics suggest a low potential for bioconcentration in aquatic organisms and this has been verified by laboratory investigations of glyphosate bioconcentration in numerous marine and freshwater organisms with and without soil. The maximum whole body bioconcentration factors for fish were observed to be less than 1X. Bioconcentration factors for sediment dwelling mollusks and crayfish tended to be slightly higher, but were always less than 10X. In addition, any residues accumulated in organisms were rapidly eliminated.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Wastes resulting from use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures. Emptied container retains vapors and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.

Container Handling and Disposal:

Nonrefillable Containers 5 Gallons or Less: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

Nonrefillable containers larger than 5 gallons: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

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

Refillable containers larger than 5 gallons: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this MSDS.

DOT:

Non Regulated

IMDG:

Non Regulated

IATA:

Non Regulated

15. REGULATORY INFORMATION

EPA FIFRA INFORMATION

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

SAFETY DATA SHEET

Aquaneat Aquatic Herbicide

Caution. Harmful if inhaled. Avoid breathing spray mist. Remove contaminated clothing and wash clothing before reuse. Wash thoroughly with soap and water after handling.

U.S. FEDERAL REGULATIONS

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):

Not Hazardous

Section 313 Toxic Chemical(s):

None

Reportable Quantity (RQ) under U.S. CERCLA:


None

RCRA Waste Code:

Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65:  **ATTENTION.** This product can expose you to chemicals including glyphosate which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

16. OTHER INFORMATION

National Fire Protection Association (NFPA) Hazard Rating:

Rating for this product: Health: 1 Flammability: 0 Reactivity: 0

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

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