Harvest
LANDSCAPE ENTERPRISES INC

Niguel Shores Chemical Spraying Map

Week of: **April 20 –April 24**

Areas: 8 and 9
(Outlined in Red)

Application Time: From **1pm-3pm** Each Day

Products: Lifeline, Specticle, Atrimmec

Glufosinate-ammonium	GROUP 10	HERBICIDE

LIFELINE®

HERBICIDE

ACTIVE INGREDIENT:	
Glufosinate-ammonium	24.5%*
OTHER INGREDIENTS:	75.5%
TOTAL:	100.0%

*Equivalent to 2.34 pounds of active ingredient per U.S. gallon.

EPA Reg. No. 70506-310

KEEP OUT OF REACH OF CHILDREN

CAUTION

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

FIRST AID	
IF ON SKIN:	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
IF IN EYES:	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. • Call a poison control center or doctor for treatment advice.
IF SWALLOWED:	• Call a poison control center or doctor for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
Have the product container or label with you when calling a Poison Center or doctor or going for treatment. For emergency medical treatment, contact Rocky Mountain Poison and Drug Safety at 1-866-673-6671.	
NOTE TO PHYSICIAN: If this product is ingested, endotracheal intubation and gastric lavage should be performed as soon as possible, followed by charcoal and sodium sulfate administration. You may also contact Rocky Mountain Poison and Drug Safety at 1-866-673-6671 for emergency medical treatment information.	

FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident, call CHEMTREC at 1-800-424-9300.

HERBICIDE

NET CONTENTS: _____ GALLONS

UPL

UPL NA Inc. • 630 Freedom Business Center, Suite 402 • King of Prussia, PA 19406 U.S.A. • 1-800-438-6071

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION. Harmful if absorbed through skin. Avoid contact with skin, eyes, or clothing.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- All handlers must wear long-sleeved shirts, long pants, shoes, and socks.
- Applicators using ground boom equipment with open cabs to treat cotton must wear long-sleeved shirts, long pants, shoes, and socks plus chemical-resistant gloves.
- Mixer/loaders supporting ground boom applications to corn, canola, soybean, cotton, citrus fruit, pome fruit, stone fruit, and olives must wear long-sleeved shirts, long pants, shoes, and socks plus chemical-resistant gloves.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users should:

Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENGINEERING CONTROLS STATEMENT

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

ENVIRONMENTAL HAZARDS

Do not apply directly to water or to areas where surface water is present. Do not apply to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters or rinsate.

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

Under some conditions, this product may have a potential to run-off to surface water or adjacent land. Where possible, use methods which reduce soil erosion, including no till, limited till and contour plowing; these methods also reduce pesticide run-off. Use vegetation filter strips along rivers, creeks, streams, wetlands, etc. or on the downhill side of fields where run-off could occur to minimize water run-off.

DIRECTIONS FOR USE

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

Do not use this product until you have read the entire label. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

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

In the State of New York Only: Not For Use In Nassau and Suffolk Counties.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses; and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry-interval (REI) of 12 hours with the following exceptions:

- Canola, field corn, and soybean scouting - REI of 4 days.
- Do not move irrigation pipe within 7 days of an application for any crop.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, including plants, soil, or water, is: coveralls worn over short-sleeved shirt and short pants; chemical-resistant gloves including barrier laminate, butyl rubber ≥ 14 mils, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, polyvinyl chloride (PVC) ≥ 14 mils, or Viton® ≥ 14 mils; chemical-resistant footwear plus socks; protective eyewear (goggles, face shield or safety glasses).

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR Part 170). The WPS applied when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. The application for trimming and edging, industrial, recreational and public areas, and farmsteads are not within the scope of the WPS. Keep unprotected persons out of treated areas until sprays have dried.

IMPORTANT CROP SAFETY INFORMATION READ BEFORE USING THIS PRODUCT

Tree, Nut, Vine and Berry treatments

When applying LIFELINE herbicide to apples, berries, tree nuts and vines, avoid contact of solution, spray, drift or mist with green bark, stems or foliage, as injury may occur. Only trunks with calloused, mature brown bark may be sprayed unless protected from spray contact by nonporous wraps, grow tubes or waxed containers. Contact of LIFELINE herbicide with parts of trees, berries or vines other than mature brown bark can result in serious damage.

PRODUCT INFORMATION

LIFELINE herbicide is a water-soluble non-selective, broad-spectrum herbicide used for control of annual and perennial grass and broadleaf weeds in a variety of crops. Uses include applications as foliar sprays in trees, vines and berry crops for control of emerged weeds; broadcast burndown applications prior to planting or crop emergence in labeled row crops; and as over-the-top applications in canola, corn, cotton, soybeans and sugar beets designated as glufosinate-resistant. LIFELINE herbicide may be used for weed control in non-glufosinate-resistant cotton when applied with a hooded sprayer in-crop.

LIFELINE herbicide may also be applied for potato vine desiccation.

ROTATIONAL CROP RESTRICTIONS*

Rotational crop planting intervals following application of LIFELINE herbicide are listed below. Failure to comply with these restrictions may result in illegal residues in rotated crops.

Rotational Crop	Plant-back Interval (Minimum Rotational Crop Planting Interval from Last Application)
Canola, Sweet Corn, Corn, Cotton, Soybeans, Sugar Beets	May be planted at any time
Root and Tuber Vegetables, Leafy Vegetables, Brassica Leafy Vegetables, Small Grains (barley, buckwheat, oats, rye, teosinte, triticale, and wheat)	70 Days
All Other Crops	180 Days

* See **Application Directions for Potato Vine Desiccation** for Rotational Crop Restrictions specifically after LIFELINE herbicide applications to potatoes. See **Application Directions for Sugar Beets** for Rotational Crop Restrictions specifically for this crop.

RESISTANCE MANAGEMENT

Herbicide Resistance Management

For resistance management, LIFELINE is a Group 10 herbicide. Any weed population may contain or develop plants naturally resistant to LIFELINE and other Group 14 herbicides. Weed species with acquired resistance to Group 10 may eventually dominate the weed population if Group 10 herbicides are used repeatedly in the same field. Appropriate resistance-management strategies should be followed.

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

- Rotate the use of LIFELINE or other Group 10 herbicides within a growing season sequence or among growing seasons with different herbicide groups that control the same weeds in a field. Whenever possible incorporate multiple weed control practices including mechanical cultivation, biological management practices, and crop rotation.
- Use tank mixtures with herbicides from a different group if such use is permitted; where information on resistance in target weed species is available, use the less resistance-prone partner at a rate that will control the target weed(s) equally as well as the more resistance-prone partner. Consult your local extension service or certified crop advisor if you are unsure as to which active ingredient is currently less prone to resistance.
- Adopt an integrated weed-management program for herbicide use that includes scouting and uses historical information related to herbicide use and crop rotation, and that considers tillage (or other mechanical control methods), cultural (e.g. higher crop seeding rates; precision fertilizer application method and timing to favor the crop and not the weeds), biological (weed-competitive crops or varieties) and other management practices.
- Fields should be scouted before application to identify the weed species present and their growth stage to determine if the intended application will be effective. Scout after herbicide application to monitor weed populations for early signs of resistance development. Indicators of possible herbicide resistance include: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; (2) a spreading patch of non-controlled plants of a particular weed species; (3) surviving plants mixed with controlled individuals of the same species. If resistance is suspected, prevent weed seed production in the affected area by an alternative herbicide from a different group or by a mechanical method including hoeing or tillage. Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment when moving between fields and planting clean seed.
- If a weed pest population continues to progress after treatment with this product, discontinue use of this product and switch to another management strategy or herbicide with a different mode of action (MOA), if available. Treat weed escapes with an herbicide with a different MOA or use non-chemical methods to remove escapes. To the extent possible do not allow weed escapes to produce seeds, roots, or tubers.

Contact your local extension specialist, certified crop advisors, and/or manufacturer for additional herbicide resistance management and/or integrated weed management recommendations for specific crops and resistant weed biotypes. Report any incidence of non-performance of this product against a particular weed species to your retailer or UPL NA Inc. representative.

WEEDS CONTROLLED

The following weeds controlled charts are outlined by crop or crop group.

WEEDS CONTROLLED TABLE – TREE FRUIT, TREE NUTS, VINES, BERRIES, AND OLIVES

Rates in fluid ounces of formulated product per acre for the control of weeds at selected heights. In weed populations with mixed species, apply at a rate needed for the species that requires the highest rate. See **APPLICATION INSTRUCTIONS AND CROP USE DIRECTIONS** for specific use directions. Apply as a broadcast, banded, or spot treatment application depending on the situation to control weeds listed. Regrowth may occur due to the weed stage of growth at application, low use rate, or environmental conditions. Repeat applications of LIFELINE herbicide may be necessary to control plants generating from underground part or seed.

Weed Height in Inches	Use Rate/A
Weeds < 3" in height	48 fl oz/A (0.88 lb ai/A)
Weeds < 6" in height	56 fl oz/A (1.02 lbs ai/A)
Weeds > 6" in height and/or grasses that have tillered	56 - 82 fl oz/A (1.02 - 1.50 lbs ai/A)

Broadleaf Weed Control		
Alkali sida	Jimsonweed	Pineapple weed
Ammannia, purple	Knotweed	Puncturevine
Arrowhead, California	Kochia	Purslane, common
Buckwheat, wild	Lambsquarters, common[1]	Radish, wild
Buffalobur		Ragweed, common
Burclover, California	Lettuce, miner's	Ragweed, giant
Carpetweed	Lettuce, prickly	Redmaids
Chickweed, common	London rocket	Shepherdspurse
Chinese thornapple	Mallow, common	Smartweed, Pennsylvania
Cocklebur, common	Malva (little mallow)	
Copperleaf, Virginia	Marestail	Sowthistle, annual
Cudweed	Mayweed	Spurge, prostrate
Cutleaf evening primrose	Morningglory, entireleaf	Starthistle, yellow
Dodder	Morningglory, ivyleaf	Sunflower, common
Eclipta	Morningglory, pitted	Sunflower, prairie
Fiddleneck	Mullein, turkey	Sunflower, volunteer
Filaree	Mustard, wild	Swinecress
Filaree, redstem	Nettle	Thistle, Russian
Fleabane, annual	Nightshade, black	Turnip, wild
Goosefoot	Nightshade, eastern black	Velvetleaf[1]
Gromwell, field		Vervain
Groundcherry, cutleaf	Nightshade, hairy	Vetch
Groundsel, common	Pennycress	Virginia copperleaf
Henbit	Pigweed, redroot	Willowherb, panicle

[1] For optimal control, make applications between dawn and 2 hours before sunset.

Grass Weed Control		
Barnyardgrass	Foxtail, giant	Rush, toad[S]
Bluegrass, annual	Foxtail, green	Ryegrass, annual[1]
Brome, ripgut	Foxtail, yellow	Sandbur, field
Bromegrass, downy	Goosegrass	Shattercane
Canarygrass	Johnsongrass, seedling	Sprangletop
Chess, soft	Junglerice	Stinkgrass
Crabgrass, large	Oat, wild	Wheat, volunteer
Crabgrass, smooth	Panicum, fall	Windgrass
Cupgrass, woolly	Panicum, Texas	Witchgrass

[S] Suppression

[1] Apply to annual ryegrass prior to 3 inches in height.

Biennial and Perennial Weed Control		
Aster, white heath	Dogbank (hemp)	Plantain
Bindweed, field	Fescue	Poison ivy/oak
Bindweed, hedge	Goldenrod, gray	Quackgrass
Bluegrass, Kentucky	Guineagrass	Rocket, yellow
Bromegrass, smooth	Horsetail	Rose, wild
Bulrush	Lovegrass	*Rubus* spp.
Burdock	Mugwort	Spurge, leafy
Canada thistle	Mullein, common	Thistle, bull
Clover, Alsike	Mustard, tansy	Thistle, musk
Clover, red	Nutsedge, purple	Torpedograss
Clover, white	Nutsedge, yellow	Vaseygrass
Dallisgrass	Onion, wild	Woodsorrel
Dandelion	Orchardgrass	Yarrow, common
Dock, curly	Paragrass	

APPLICATION AND MIXING PROCEDURES

Uniform, thorough spray coverage is important to achieve consistent weed control. The use of surfactants and the addition of AMS may improve weed control. Please note that addition of MSO may cause antagonism and reduce overall performance.

Refer to the **WEEDS CONTROLLED** tables or **APPLICATIONS INSTRUCTIONS AND CROP USE DIRECTIONS** for application rates.

Ground Application: Apply early when weeds are small.

Apply in a minimum of 15 gallons of water per acre. Increase to a maximum of 40 gallons of water per acre if dense weed canopy exists or as required by climatic conditions.

Aerial Application: Apply early when weeds are small.

Thorough coverage is necessary for best weed control. For optimal weed control, apply LIFELINE herbicide in a minimum of 10 gallons per acre.

See the **MANDATORY SPRAY DRIFT MITIGATION** section for additional information on proper application of LIFELINE herbicide.

DO NOT use flood jet nozzles, controlled droplet application equipment, or air-assisted spray equipment.

COMPATIBILITY TESTING

If LIFELINE herbicide will be mixed with other pesticide products, test the compatibility of the intended tank mixture before mixing the products in the spray tank. The following procedure assumes a spray volume of 25 gallons per acre. For other spray volumes, adjust the amount of the water used accordingly. Check compatibility using this process:

1. In a clear 1-quart jar, place 1.0 pint of water from the source that will be used to prepare the spray solution.
2. For each pound of a dry tank mix partner to be applied per acre, add 1.5 teaspoons to the jar.
3. For each 16 fl oz of a liquid tank mix partner to be applied per acre, add 0.5 teaspoon to the jar.
4. For each 16 fl oz of LIFELINE herbicide to be applied per acre, add 0.5 teaspoon to the jar.
5. After adding all the ingredients, place a lid on the jar and tighten, then invert 10 times to mix.
6. Allow the mixture to stand for 15 minutes, then evaluate the solution for uniformity and stability. Look for separation, large flakes, precipitates, gels, heavy oily film on the jar, or other signs of incompatibility. If the tank mix partners are not compatible, **DO NOT** use the mixture in a spray tank.
7. Once compatibility testing is complete, dispose of any pesticide wastes in accordance with the **STORAGE AND DISPOSAL** section of this label.

MIXING INSTRUCTIONS

Tank Mix Instructions: LIFELINE herbicide may be applied in tank mix combinations with labeled rates of other products. Use the tank mix partner in accordance with label limitations and restrictions. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

LIFELINE herbicide must be applied with properly calibrated and clean equipment. LIFELINE herbicide is formulated to mix readily in water. Prior to adding LIFELINE herbicide to the spray tank, ensure that the spray tank is thoroughly clean, particularly if a herbicide with the potential to injure crops was previously used (see **CLEANING INSTRUCTIONS**).

Mix LIFELINE herbicide with water to make a finished spray solution as follows:

1. Fill the spray tank half full with water.
2. Begin agitation.
3. If mixing with a flowable/wettable powder tank mix partner, prepare a slurry of the proper amount of the product in a small amount of water. Add the slurry to the spray tank.
4. Add the appropriate amount of ammonium sulfate (AMS) to the spray tank.
5. If mixing with a liquid tank mix partner, add the liquid mix partner next.
6. Complete filling the spray tank with water.
7. Add the proper amount of LIFELINE herbicide and continue agitation.
8. If foaming occurs, use a silicone-based antifoam agent.

Ensure that all spray system lines including pipes, booms, etc. have the correct concentration of spray solution by flushing out the spray system lines before starting the crop application.

If tank mix partners are added, maintain good agitation at all times until contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation is required to re-suspend the mixture before spraying is resumed. Keep bypass line on or near bottom of tank to minimize foaming. Screen size in nozzles or line strainers must be 50 mesh or larger.

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

CLEANING INSTRUCTIONS

Before using LIFELINE herbicide, thoroughly clean bulk storage tank, refillable tank, nurse tanks, spray tank, lines, and filter, particularly if a herbicide with the potential to injure crops was previously used. Ensure that equipment is thoroughly rinsed using a commercial tank cleaner.

After using LIFELINE herbicide, triple rinse the spray equipment and clean with a commercial tank cleaner before using for crops not labeled as glufosinate-resistant. Make sure any rinsate or foam is thoroughly removed from spray tank and boom. Rinsate may be disposed following the pesticide disposal directions on this label.

MANDATORY SPRAY DRIFT MITIGATION

Ground Boom Applications:

- Spray at the appropriate boom height based on nozzle selection and nozzle spacing, but **DO NOT** exceed a boom height of 24 inches above target pest or crop canopy. Set boom to lowest effective height over the target pest or crop canopy based on equipment manufacturer's directions. Automated boom height controllers are recommended with large booms to better maintain optimum nozzle to canopy height. Excessive boom height will increase the potential for spray drift.
- For non-crop vegetation management ground applications, apply with the nozzle height no more than 4 feet above the ground or target vegetation, unless necessitated by the application equipment. Examples would include roadside, railroad, utility rights of way, forestry and other industrial vegetation management applications where safety or natural barriers obstruct application.
- Select nozzle and pressure that deliver medium to coarse spray droplets as indicated in nozzle manufacturer's catalogues and in accordance with ASABE Standard 572.1.
- **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
- **DO NOT** apply during temperature inversions.

(continued)

MANDATORY SPRAY DRIFT MITIGATION *(continued)*

Aerial Applications:

- When applying aerially to crops, **DO NOT** release spray at a height greater than 10 feet above the crop canopy, unless a greater application height is necessary for pilot safety.
- Select nozzle and pressure that deliver medium to coarse spray droplets as indicated in nozzle manufacturer's catalogues and in accordance with ASABE Standard 572.1.
- When applying to crops via aerial application equipment, the spray boom must be mounted on the aircraft so as to minimize drift caused by wing tip or rotor blade vortices. The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.
- When applying to crops via aerial application equipment, applicators must use 1/2 swath displacement upwind at the downwind edge of the field.
- Nozzles must be oriented so the spray is directed toward the back of the aircraft.
- **DO NOT** apply when wind speeds exceed 10 miles per hour at the application site.
- **DO NOT** apply during temperature inversions.

SPRAY DRIFT ADVISORIES

POLLINATOR ADVISORY STATEMENT: This product contains an herbicide. Follow all label directions and precautions to minimize potential off-target exposure in order to prevent effects to non-target plants adjacent to the treated site which may serve as habitat or forage for pollinators.

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

Importance of Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. The presence of sensitive species nearby, the environmental conditions, and pest pressure may affect how an applicator balances drift control and coverage. APPLYING LARGER DROPLETS REDUCES DRIFT POTENTIAL, BUT WILL NOT PREVENT DRIFT IF APPLICATIONS ARE MADE IMPROPERLY OR UNDER UNFAVORABLE ENVIRONMENTAL CONDITIONS! See **WIND**, **TEMPERATURE AND HUMIDITY**, and **TEMPERATURE INVERSIONS** sections of this label.

Controlling Droplet Size - Ground Boom

Volume - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.

Pressure - Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. WHEN HIGHER FLOW RATES ARE NEEDED, USE A HIGHER-CAPACITY NOZZLE INSTEAD OF INCREASING PRESSURE.

Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles.

Controlling Droplet Size - Aircraft

Number of Nozzles - Use the minimum number of nozzles with the highest flow rate that provide uniform coverage.

Nozzle Orientation - Orienting nozzles so that the spray is emitted backwards, parallel to the airstream will produce larger droplets than other orientations. AVOIDING SPRAY DRIFT IS THE RESPONSIBILITY OF THE APPLICATOR.

Nozzle Type - Solid stream nozzles (including disc and core with swirl plate removed) oriented straight back produce larger droplets than other nozzle types.

Boom Length - Longer booms increase drift potential. Therefore a shorter boom length is recommended.

Application Height - Application more than 10 feet above the canopy increases the potential for spray drift.

BOOM HEIGHT

Setting the boom at the lowest referenced height (if specified) which provides uniform coverage reduces the exposure of droplets to evaporation and wind. For ground equipment, the boom should remain level with the crop and have minimal bounce.

DRIFT REDUCTION TECHNOLOGY (DRT)

The EPA Drift Reduction Technology (DRT) Program was developed to encourage the manufacture, marketing, and use of spray technologies scientifically verified to significantly reduce pesticide drift. The use of DRTs should result in significantly less pesticide from spray applications drifting and being deposited in areas not targeted by those applications, compared to spray technologies that do not meet the minimum DRT standard. EPA-verified drift reduction technologies (DRTs) and their ratings will be added to the following webpage as they become available: https://www.epa.gov/reducing-pesticide-drift/epa-verified-and-rated-drift-reduction-technologies

WIND

Drift potential increases at wind speeds of less than 3 mph (due to inversion potential) or more than 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given wind speed. AVOID APPLICATIONS DURING GUSTY OR WINDLESS CONDITIONS.

Note: Local terrain can influence wind patterns. Every applicator needs to be familiar be familiar with local wind patterns and how they affect spray drift.

TEMPERATURE AND HUMIDITY

When making applications in hot and dry conditions, set up equipment to produce larger droplets to reduce effects of evaporation.

TEMPERATURE INVERSIONS

Drift potential is high during a temperature inversion. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce the effects of wind. However, it is the responsibility of the applicator to verify that the shields are preventing drift and not interfering with uniform deposition of the product.

APPLICATION INSTRUCTIONS AND CROP USE DIRECTIONS

The following tables indicate use patterns, rates, minimum spray volumes, preharvest intervals and other precautions, restrictions and comments specific to each crop. Read and follow directions carefully.

LIFELINE herbicide is a foliar active herbicide with no soil residual activity. For best results, apply to emerged, young, actively growing weeds, targeting weeds less than 3" in height. Warm temperatures, high humidity and bright sunlight improves the performance of LIFELINE herbicide. Necrosis of leaves and young shoots occurs within 2 to 4 days after application under growing conditions.

Weeds that emerge after application will not be controlled. LIFELINE herbicide will have an effect on these weeds, however, speed of activity and control may be reduced.

Weed control may be reduced if application is made when heavy dew, fog, mist or rain are present or when weeds are under stress due to drought, cool temperatures, or extended periods of cloudiness.

When applying for control of lambsquarters and velvetleaf, make applications between dawn and 2 hours before sunset to avoid the possibility of reduced control.

The addition of ammonium sulfate at 1.5 - 3.0 lbs/acre may improve weed control. Rates are dependent on tank mix partners, environmental conditions, temperatures and potential for leaf burn.

Spray volume of 15 gallons of water per acre minimum. If dense canopy, large weeds or unfavorable growing conditions are present, increase water volume to 20 gallons of water per acre.

For optimal yield, early season weed removal is important.

To maximize weed control, do not cultivate from 5 days before an application to 7 days after an application.

LIFELINE herbicide is rainfast 4 hours after application; therefore rainfall within 4 hours may necessitate retreatment.

Consult your local Cooperative Extension Service for guidelines on optimum application timing for LIFELINE herbicide in your region.

Crop	Use Pattern	Rate/Acre	Directions	Restrictions
POME FRUIT (Crop Group 11-10) Apples, Crabapple, Loquat, Mayhaw, Quince, Pear, Oriental Pear, Azarole, Medlar, Tejocote, cultivars, varieties and/or hybrids of these	Broadcast Banded Directed Spray Spot Treatments See **APPLICATION METHODS** section for additional information on Banded, Directed Spray and Spot Treatments	**Weeds < 3" in height** 48 fl oz/A (0.88 lb ai/A) **Weeds < 6" in height** 56 fl oz/A (1.02 lbs ai/A) **Weeds > 6" in height and/or grasses that have tillered** 56 - 82 fl oz/A (1.02 - 1.50 lbs ai/A)	Apply to emerged, young, actively growing weeds. Uniform, thorough spray coverage is necessary to achieve consistent weed control. Avoid direct spray, drift or mist to desirable vegetation, green bark, stems or foliage, as injury may occur. Only trunks with callused, mature brown bark may be sprayed unless protected from spray contact by nonporous wraps, grow tubes, or waxed containers. When tank mixing with a residual herbicide no additional surfactant is needed.	**DO NOT** apply more than 82 fl oz (1.50 lbs ai)/A in a single application. **DO NOT** make more than 3 applications per year at the maximum rate of 82 fl oz (1.50 lbs ai)/A, and **DO NOT** apply closer than 14 days apart. **DO NOT** graze, harvest and/or feed treated orchard cover crops to livestock. **DO NOT** aerially apply. **DO NOT** apply through any type of irrigation system. **DO NOT** make spot spray applications to suckers as tree injury may occur. **DO NOT** apply within 14 days of harvest. **DO NOT** apply more than 246 fl oz (4.5 lbs ai)/A through any combination of use patterns per year.
CITRUS (Crop Group 10-10) Calamondin, Citrus citron, Citrus hybrids (chironja, tangelo, tangor), Grapefruit, Kumquat, Lemon, Lime, Mandarin (tangerine), Orange (sour, sweet), Pummelo, Satsuma mandarin, cultivars, varieties and/or hybrids of these	Broadcast Banded Directed Spray Spot Treatments See **APPLICATION METHODS** section for additional information on Banded, Directed Spray and Spot Treatments	**Weeds < 3" in height** 48 fl oz/A (0.88 lb ai/A) **Weeds < 6" in height** 56 fl oz/A (1.02 lbs ai/A) **Weeds > 6" in height and/or grasses that have tillered** 56 - 82 fl oz/A (1.02 - 1.50 lbs ai/A)	Apply to emerged, young, actively growing weeds. Uniform, thorough spray coverage is necessary to achieve consistent weed control. Avoid direct spray, drift or mist to desirable vegetation, green bark, stems or foliage, as injury may occur. Only trunks with callused, mature brown bark may be sprayed unless protected from spray contact by nonporous wraps, grow tubes, or waxed containers.	**DO NOT** apply more than 82 fl oz (1.50 lbs ai)/A in a single application. **DO NOT** make more than 3 applications per year at the maximum rate of 82 fl oz (1.50 lbs ai)/A, and **DO NOT** apply closer than 14 days apart. **DO NOT** graze, harvest and/or feed treated orchard cover crops to livestock. **DO NOT** aerially apply. **DO NOT** apply through any type of irrigation system. **DO NOT** make spot spray applications to suckers as tree injury may occur. **DO NOT** apply within 14 days of harvest. **DO NOT** apply more than 246 fl oz (4.5 lbs ai)/A through any combination of use patterns per year.
GRAPES Raisin, Table, Wine	Broadcast Banded Directed Spray Spot Treatments See **APPLICATION METHODS** section for additional information on Banded, Directed Spray and Spot Treatments	**Weeds < 3" in height** 48 fl oz/A (0.88 lb ai/A) **Weeds < 6" in height** 56 fl oz/A (1.02 lbs ai/A) **Weeds > 6" in height and/or grasses that have tillered** 56 - 82 fl oz/A (1.02 - 1.50 lbs ai/A)	Apply to emerged, young, actively growing weeds. Uniform, thorough spray coverage is necessary to achieve consistent weed control. Avoid direct spray, drift or mist to desirable vegetation, green bark, stems, or foliage as injury may occur. Only trunks with callused, mature brown bark may be sprayed unless protected from spray contact by nonporous wraps, grow tubes, or waxed containers.	**DO NOT** apply more than 82 fl oz (1.50 lbs ai)/A in a single application. **DO NOT** make more than 3 applications per year at the maximum rate of 82 fl oz (1.50 lbs ai)/A, and **DO NOT** apply closer than 14 days apart. **DO NOT** aerially apply. **DO NOT** apply through any type of irrigation system. **DO NOT** make spot spray applications to suckers as tree injury may occur. **DO NOT** apply within 14 days of harvest. **DO NOT** apply more than 246 fl oz (4.5 lbs ai)/A through any combination of use patterns per year.

Crop	Use Pattern	Rate/Acre	Directions	Restrictions
STONE FRUIT (Crop Group 12-12) Apricot, Cherry (sweet, tart), Nectarine, Peach, Plum (chickasaw, damson, Japanese), Plumcot, Prune (fresh)	Broadcast Banded Directed Spray Spot Treatments See **APPLICATION METHODS** section for additional information on Banded, Directed Spray and Spot Treatments	**Weeds < 3" in height** 48 fl oz/A (0.88 lb ai/A) **Weeds < 6" in height** 56 fl oz/A (1.02 lbs ai/A) **Weeds > 6" in height and/or grasses that have tillered** 56 - 82 fl oz/A (1.02 - 1.50 lbs ai/A)	Apply to emerged, young, actively growing weeds. Uniform, thorough spray coverage is necessary to achieve consistent weed control. Avoid direct spray, drift or mist to desirable vegetation, green bark, stems, or foliage as injury may occur. Only trunks with callused, mature brown bark may be sprayed unless protected from spray contact by nonporous wraps, grow tubes, or waxed containers.	**DO NOT** apply more than 82 fl oz (1.50 lbs ai)/A in a single application. **DO NOT** make more than 2 applications per year at the maximum rate of 82 fl oz (1.50 lbs ai)/A, and **DO NOT** apply closer than 28 days apart. **DO NOT** graze, harvest and/or feed treated orchard cover crops to livestock. **DO NOT** aerially apply. **DO NOT** apply through any type of irrigation system. **DO NOT** make spot spray applications to suckers as tree injury may occur. **DO NOT** apply within 14 days of harvest. **DO NOT** apply more than 164 fl oz (3.0 lbs ai)/A through any combination of use patterns per year.
TREE NUTS (Crop Group 14) Almond, Beech nut, Brazil nut, Butternut, Cashew, Chestnut, Chinquapin, Filbert (hazelnut), Hickory nut, Macadamia (bush nut), Pecan, Pistachio, Walnut (black and English (Persian))	Broadcast Banded Directed Spray Spot Treatments See **APPLICATION METHODS** section for additional information on Banded, Directed Spray and Spot Treatments	**Weeds < 3" in height** 48 fl oz/A (0.88 lb ai/A) **Weeds < 6" in height** 56 fl oz/A (1.02 lbs ai/A) **Weeds > 6" in height and/or grasses that have tillered** 56 - 82 fl oz/A (1.02 - 1.50 lbs ai/A)	Apply to emerged, young, actively growing weeds. Uniform, thorough spray coverage is necessary to achieve consistent weed control. Avoid direct spray, drift or mist to desirable vegetation, green bark, stems, or foliage, as injury may occur. Only trunks with callused, mature brown bark may be sprayed unless protected from spray contact by nonporous wraps, grow tubes, or waxed containers.	**DO NOT** apply more than 82 fl oz (1.50 lbs ai)/A in a single application. **DO NOT** make more than 3 applications per year at the maximum rate of 82 fl oz (1.50 lbs ai)/A, and **DO NOT** apply closer than 14 days apart. **DO NOT** graze, harvest and/or feed treated orchard cover crops to livestock. **DO NOT** aerially apply. **DO NOT** apply through any type of irrigation system. **DO NOT** make spot spray applications to suckers as tree injury may occur. **DO NOT** apply within 14 days of harvest. **DO NOT** apply more than 246 fl oz (4.5 lbs ai)/A through any combination of use patterns per year.
BERRIES (Bushberry Subgroup 13b) Bushberries, Blueberry, Currant, Elderberry, Gooseberry, Huckleberry, Lingonberry, Juneberry, Salal	Broadcast Banded Directed Spray Spot Treatments See **APPLICATION METHODS** section for additional information on Banded, Directed Spray and Spot Treatments	**Weeds < 3" in height** 48 fl oz/A (0.88 lb ai/A) **Weeds < 6" in height** 56 fl oz/A (1.02 lbs ai/A) **Weeds > 6" in height and/or grasses that have tillered** 56 - 82 fl oz/A (1.02 - 1.50 lbs ai/A)	Apply to emerged, young, actively growing weeds. Uniform, thorough spray coverage is necessary to achieve consistent weed control. Avoid direct spray, drift or mist to desirable vegetation, green bark, stems, or foliage, as injury may occur. Only trunks with callused, mature brown bark may be sprayed unless protected from spray contact by nonporous wraps, grow tubes, or waxed containers.	**DO NOT** apply more than 82 fl oz (1.50 lbs ai)/A in a single application. **DO NOT** make more than 2 applications per year at the maximum rate of 82 fl oz (1.50 lbs ai)/A, and **DO NOT** apply closer than 14 days apart. **DO NOT** aerially apply. **DO NOT** apply through any type of irrigation system. **DO NOT** make spot spray applications to suckers as tree injury may occur. **DO NOT** apply within 14 days of harvest. **DO NOT** apply more than 164 fl oz (3.0 lbs ai)/A through any combination of use patterns per year.

Crop	Use Pattern	Rate/Acre	Directions	Restrictions
OLIVES	Broadcast Banded Directed Spray Spot Treatments See **APPLICATION METHODS** section for additional information on Banded, Directed Spray and Spot Treatments	**Weeds < 3" in height** 48 fl oz/A (0.88 lb ai/A) **Weeds < 6" in height** 56 fl oz/A (1.02 lbs ai/A) **Weeds > 6" in height and/or grasses that have tillered** 56 - 82 fl oz/A (1.02 - 1.50 lbs ai/A)	Apply to emerged, young, actively growing weeds. Uniform, thorough spray coverage is necessary to achieve consistent weed control. Avoid direct spray, drift or mist to desirable vegetation, green bark, stems, or foliage, as injury may occur. Only trunks with callused, mature brown bark may be sprayed unless protected from spray contact by nonporous wraps, grow tubes, or waxed containers.	**DO NOT** apply more than 82 fl oz (1.50 lbs ai)/A in a single application. **DO NOT** make more than 3 applications per year at the maximum rate of 82 fl oz (1.50 lbs ai)/A, and **DO NOT** apply closer than 14 days apart. **DO NOT** graze, harvest and/or feed treated orchard cover crops to livestock. **DO NOT** aerially apply. **DO NOT** apply through any type of irrigation system. **DO NOT** make spot spray applications to suckers as tree injury may occur. **DO NOT** apply within 14 days of harvest. **DO NOT** apply more than 246 fl oz (4.50 lbs ai)/A through any combination of use patterns per year.
POTATOES	Vine Desiccation	21 fl oz/A (0.38 lb ai/A)	Apply at the beginning of natural senescence of potato vines. Potato varieties with heavy or dense vines may require an application of another desiccation product to complete vine desiccation. Thorough coverage of the potato vines to be desiccated is essential. Use sufficient volume of water (20 to 100 gpa). Vary the gallons of water per acre and spray pressure as indicated by the density of the potato vines. Increase spray volume to at least 30 gallons of water per acre when potato canopy is dense or under cool and dry conditions. Apply with the spray boom as low as possible to achieve thorough coverage of the potato vines for best control and to minimize drift potential.	**DO NOT** apply to potatoes grown for seed. **DO NOT** apply more than 21 fl oz (0.38 lb ai)/A in a single application. **DO NOT** split application or make more than 1 application per year. **DO NOT** harvest potatoes until 9 days or more after application. **DO NOT** apply more than 21 fl oz (0.38 lb ai)/A per year.

- Canola, corn, cotton, soybean and sugar beets may be planted at any time after an application of LIFELINE herbicide as a potato vine desiccant.
- Wheat, barley, buckwheat, millet, oats, rye sorghum or triticale may be planted 30 days or more after an application of LIFELINE herbicide as a potato vine desiccant.
- All other crops may be planted 120 or more days after an application of LIFELINE herbicide as a potato vine desiccant.

SUCKER CONTROL

When applied to suckers that are young, green, and uncalloused, LIFELINE herbicide will reduce or eliminate sucker growth. For sucker control, make a split application approximately 4 weeks apart at 56 fl oz of product/A (1.02 lbs ai/A) in a broadcast application. Thorough coverage of all sucker foliage is necessary for optimum control. Suckers must not exceed 12 inches in length. **DO NOT** make spot applications to trunk as injury may occur.

TANK MIX PARTNER INSTRUCTIONS

Because LIFELINE herbicide does not provide residual weed control or control of unexposed plant parts, certain herbicide tank mixes may aid in the performance of LIFELINE herbicide or be added to provide residual herbicide activity. No additional surfactant is needed with any tank mix partner. LIFELINE herbicide may be applied in tank mix combinations with labeled rates of other products that are labeled for the timing and method of application for the crop to be treated. Always use the tank mix partner in accordance with the label limitations and restrictions. **DO NOT** exceed label dosage rates. LIFELINE herbicide may not be mixed with any product containing a label prohibition against such mixing. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

APPLICATION METHODS

BANDED SPRAY APPLICATIONS – TREE FRUIT, TREE NUTS, VINES, BERRIES, AND OLIVES

Banded applications may be used using the following formula to calculate the amount of herbicide needed for orchard or vineyard strip sprays:

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Rate per acre broadcast} = \text{Amount of herbicide needed for treatment}$$

SPOT OR DIRECTED SPRAY APPLICATIONS – TREE FRUIT, TREE NUTS, VINES, BERRIES, AND OLIVES

For spot or directed spray applications mix LIFELINE herbicide at 1.7 fl oz of product (0.33 lb ai) per gallon of water. Apply to undesirable vegetation foliage until wet but prior to runoff. Ensure uniform and complete coverage. Thoroughly clean the sprayer following use. **DO NOT** make spot or directed spray applications to tree or vine trunk as injury may occur.

TANK MIXTURES

See **COMPATIBILITY TESTING** section of this label if tank mixing with other pesticide products.

For all crops certain herbicide tank mixes may aid in the performance of LIFELINE herbicide or be added to provide residual herbicide activity. When tank mixing with a residual herbicide no additional surfactant is needed. LIFELINE herbicide may be applied in tank mix combinations with labeled rates of other products labeled for the timing and method of application for the crop to be treated. The tank mix partner must be used in accordance with the label limitations and restrictions. No label dosage rates may be exceeded. LIFELINE herbicide may not be mixed with any product containing a label prohibition against such mixing.

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

FALLOW FIELDS OR POST HARVEST

LIFELINE herbicide may be used as a substitute for tillage in fallow fields to control or suppress weeds listed in the **WEEDS CONTROLLED** table section of this label. Applications may be made in fallow fields, post-harvest, before planting or emergence of any crop listed on this label.

Apply LIFELINE herbicide at 22 - 29 fl oz/A (0.40 - 0.53 lb ai/A) to fallow fields to control specific weeds. LIFELINE herbicide must be applied with ammonium sulfate. Tank mixes with 2,4-D, glyphosate or atrazine and LIFELINE herbicide will enhance total weed control. Always follow the precautions and directions of use of the most restrictive label of products used in tank mix combinations. See the **APPLICATION AND MIXING PROCEDURES** section of this label for additional information on how to apply this product. See the **PRODUCT INFORMATION** section of this label for rotational crop restrictions.

Restrictions

- **DO NOT** apply more than 29 fl oz/A (0.53 lb ai)/A in a single application.
- **DO NOT** make more than 3 applications per year at a minimum retreatment interval of 14 days.
- **DO NOT** apply more than 87 fl oz/A (1.59 lbs ai)/A per year.

FARMSTEAD AREAS

When applied as listed, LIFELINE herbicide controls undesirable plant vegetation in non-crop areas listed under the header **WHERE TO APPLY**. Refer to **WEEDS CONTROLLED** tables for list of weeds controlled.

Apply as a spot or directed spray treatment application depending on the situation to control weeds. Regrowth may occur due to the weed stage of growth at application, low use rate, or environmental conditions. Repeat applications may be necessary to control plants generating from underground part or seed.

Apply 48 - 82 fl oz (0.88 - 1.50 lbs ai)/A per application.

See the **APPLICATION AND MIXING PROCEDURES** section of this label for additional information on how to apply this product. See the **PRODUCT INFORMATION** section of this label for rotational crop restrictions.

Restrictions

- **DO NOT** apply more than 82 fl oz (1.50 lbs ai)/A in a single application.
- **DO NOT** make more than 3 applications per year at a minimum retreatment interval of 14 days.
- **DO NOT** apply more than 246 fl oz (4.5 lbs ai)/A per year.

NON-CROP USES

LIFELINE herbicide is a non-selective water-soluble herbicide for application as a foliar spray for the control of a broad spectrum of emerged annual and perennial grass and broadleaf weeds. Plants that have not yet emerged at the time of application will not be controlled. THOROUGH SPRAY COVERAGE IS IMPORTANT. Visual effects and control from application of LIFELINE herbicide occur within 2 to 4 days after application under good growing conditions.

This product is non-selective and will injure or kill all green vegetation contacted by the spray. Avoid all contact with foliage or green tissue of desirable vegetation. Avoid direct spray or drift onto green, thin, or uncalloused bark of desirable vegetation or plant injury may result. If desirable vegetation is contacted, rinse with sprayed portion with water immediately.

WHERE TO APPLY

LIFELINE herbicide may be used on the following military, private, and public lands:

- access roads
- airfields
- airports
- alleys
- along fences
- around commercial or industrial structures or outbuildings
- around farm and ranch structures and outbuildings
- around ornamental gardens
- around ornamental trees and shrubs (including Christmas trees)
- bare ground
- barrier strips
- beaches*
- campgrounds
- canals
- Conservation Reserve Program (CRP)*
- construction sites
- ditch banks
- drive-in theaters
- driveways
- dry ditches
- fencerows
- firebreaks
- fuel storage areas
- golf courses* (excluding greens, tees, aprons, fairways, and roughs)*
- gravel yards
- greenhouses
- habitat restoration and management areas
- highways and roadsides (including aprons, medians, guardrails, and right of ways)
- industrial areas
- industrial plant sites
- landscapes
- lanes
- lumbar yards
- mulched areas
- natural areas and brush control
- nurseries
- parking areas
- parks
- paths
- paved areas
- petroleum and other tank farms
- pipeline, power, telephone, and utility rights of way
- power stations
- preplant to turf and ornamental plants
- pumping installations
- railroad rights of way
- ramps
- recreation areas
- refineries
- resorts
- schools
- sewage disposal areas
- shadehouses
- shelter belts
- sidewalks
- site preparation areas for conifer and hardwood
- sports areas
- storage areas
- substations
- tennis courts
- trails
- uncropped farmstead areas
- vacant lots
- walkways
- wastelands
- wildlife food plots*
- wildlife habitat areas
- wildlife openings

*Not for use in California

Conservation Reserve Program (CRP)

Not for use in California. LIFELINE herbicide may be used to suppress competitive growth and seed production of undesirable vegetation when rotating out of CRP acres. Apply 48 to 56 fl oz (0.88 to 1.0 lb ai) per acre of LIFELINE herbicide in early spring, before CRP grasses break dormancy, for selective applications with broadcast spray equipment. After desirable perennial grasses have reached dormancy, late fall applications may be made. Some stunting of CRP perennial grasses may occur if applications are made when plants are not dormant.

Trimming and Edging

LIFELINE herbicide may be used for trimming and edging areas listed under the header **WHERE TO APPLY**. For control of weeds emerging from seed, the use of LIFELINE herbicide in a tank mix with pre-emergence herbicides is advised. If spraying in areas adjacent to desirable plants, use a shield made of cardboard, plywood, or sheet metal while spraying to help prevent spray from contacting foliage of desirable plants.

Public and Recreational Areas

When applied as a spot or directed spray application, this product controls annual and perennial weeds listed on this label, in areas listed under the header **WHERE TO APPLY**.

Dormant Bermudagrass

LIFELINE herbicide may be used to control winter annual weeds in well-established ornamental dormant hybrid or common Bermudagrass. **Apply only when the turf is fully dormant and weather is cool, and prior to spring green-up or severe turfgrass injury or delayed green-up may occur.** For best results, apply LIFELINE herbicide at a rate of 56 - 82 fl oz (1.0 - 1.5 lbs ai)/A after most weeds have germinated and are in an early growth stage. Applications of LIFELINE herbicide may also be used to suppress or control target biennial or perennial weeds. Avoid high volume and spot applications where spray volume exceeds 80 gallons per acre or injury or delayed green-up may occur.

Restrictions for Dormant Bermudagrass

- **DO NOT** apply more than 82 fl oz (1.5 lbs ai)/A in a single application.
- **DO NOT** apply more than 82 fl oz (1.5 lbs ai)/A per year for this use.
- **DO NOT** make more than one application per year.

Ornamentals and Christmas Trees

When applied as advised by this label, this product may be used for the control of undesired vegetation in site preparation prior to planting, around and within shade and greenhouses, and as a directed spray around containers and field-grown established ornamentals and Christmas trees.

Ornamental and Christmas Tree Restrictions

- **DO NOT** apply directly to or allow drift to contact desirable green tissue or green, thin, or uncalloused bark of desirable vegetation or injury may result.
- **DO NOT** apply LIFELINE herbicide as an over-the-top broadcast spray in ornamentals and shade or Christmas trees.

For pre-plant site preparation applications for control of annual and perennial weeds listed on this label, in ornamental and Christmas tree plantings, ornamental and Christmas trees may be planted into the treated area after the restricted entry interval (REI) of 12 hours has elapsed.

LIFELINE herbicide may be used between and around containers and in site preparation for new plantings, and to control in-row weeds in field-grown wood plants. Apply LIFELINE herbicide as a directed spray.

For greenhouse and shadehouse applications where LIFELINE herbicide is used to control weeds, air circulation fans must be turned off during application. Apply LIFELINE herbicide as a directed spray, using large droplet and low-pressure type nozzles. Avoid drift and direct contact with desirable vegetation.

Greenhouse and Shadehouse Restrictions

- **DO NOT** use in greenhouses or shadehouses containing edible crops.

Site Preparation for Conifer and Hardwood Production Areas

Prior to planting conifer and hardwood species, LIFELINE herbicide can be used as a site preparation treatment.

- **DO NOT** apply LIFELINE herbicide as an over-the-top broadcast spray to desirable conifer or hardwood plantings.
- Restricted Entry Interval (REI) for seedling conifer and hardwood treats to be planted into the treated area: 12 hours.

WHEN TO APPLY

LIFELINE herbicide is a foliar-active material and works best when weeds are actively growing. Weed control may be reduced when applications are made to weeds under stress due to drought or cool temperatures.

Weeds under stress or in dense populations will require application of the highest rate indicated. Always apply at the labeled rate. Repeat applications or tank mixes of LIFELINE herbicide plus one or more appropriate residual herbicides will be needed to control weeds emerging from underground parts or seeds. When tank mixing with other herbicides, follow the label with the most restrictive directions for use and precautions. No label dosage rates may be exceeded.

Regrowth may occur due to the weed stage of growth at application, low use rate, or environmental conditions. Repeat treatments may be necessary to control weeds generating from underground parts or seeds.

APPLICATION DIRECTIONS

Applications may be made as a broadcast, banded or spot treatment basis depending on the situation.

Application Method	Use Rate	Directions	Restrictions
Spot or Directed Applications	1 - 2 fl oz (0.02 - 0.04 lb ai) per gallon of water	Use rate depends on weed species being controlled. Spray undesirable vegetation foliage on a spray-to-wet basis. Ensure uniform and complete coverage. Use a coarse spray. Backpack, pump-up, and hydraulic sprayers may be used. Thoroughly clean the sprayer following use.	**DO NOT** apply beyond runoff. **DO NOT** spray during windy conditions. **DO NOT** exceed single maximum and yearly maximum broadcast use rates.
Broadcast or Boom Applications	48 - 72 fl oz (0.88 - 1.32 lbs ai) per acre in a minimum of 40 gallons of water	Use rate depends on weed species being controlled. Use 30-psi spray pressure minimum. For smaller weeds 3 inches or less, use the lower rate. For weeds 6 inches or less use the upper end of the rate range.	**DO NOT** apply more than 72 fl oz (1.32 lbs ai)/A in any single application. **DO NOT** apply more than once per year. **DO NOT** apply more than 72 fl oz (1.32 lbs ai)/A in a single year.
Aerial Applications	48 - 72 fl oz (0.88 - 1.32 lbs ai) per acre in a minimum of 5 gallons of water	Use rate depends on weed species being controlled. For smaller weeds 3 inches or less, use the lower rate. For weeds 6 inches or less use the upper end of the rate range. See **MANDATORY SPRAY DRIFT MITIGATION** and **SPRAY DRIFT ADVISORIES** sections. Drift control additives may be used. If a drift control additive is used, observe and follow all directions and precautions as specified on the additive label.	**DO NOT** apply more than 72 fl oz (1.32 lbs ai)/A in any single application. **DO NOT** apply more than once per year. **DO NOT** apply more than 72 fl oz (1.32 lbs ai)/A in a single year.

WEEDS CONTROLLED

		Directions and Restrictions
Brush* Controlled or Suppressed		
Blackberry Deer brush Douglas fir Gallberry Hazel Honeysuckle Huckleberry Maple Multiflora rose Oak Poison ivy/oak	Pine Roundleaf Greenbrier Salmonberry Sweetgum Sumac Thimbleberry Trumpetcreeper Vine maple Western red cedar	LIFELINE herbicide will provide control or suppression of these listed perennial wood weed species when applied as recommended. Apply 32 to 96 fl oz (0.59 to 1.76 lbs ai) per acre. When conditions are not optimum for good spray penetration, use the higher recommended use rate. **DO NOT** exceed 1.9 gallons (4.5 lbs ai) per acre per year.

*** Not for use in California.**

		Spot Application	Broadcast Application
Broadleaf Weeds			
Annual sowthistle Bindweed Buffalobur Burdock Canada thistle Chickweed Clover Common cocklebur Curly dock Dandelion Dogbane (hemp) Field gromwell Filaree Fleabane Goldenrod Horsetail Jimsonweed Kochia Lambsquarters Leafy spurge London rocket Malva (little mallow) Marestail Mugwort	Musk thistle Nettle Nightshade Pennycress Pigweed, redroot Plantain Prickly lettuce Purslane Ragweed Russian thistle Shepherdspurse Smartweed Tansy mustard Velvetleaf Vervain Virginia copperleaf White heath aster Wild buckwheat Wild mustard Wild onion Wild rose Wild turnip Woodsorrel Yellow rocket	Apply 1 - 2 fl oz (0.02 - 0.04 lb ai)/ gallon of water	Apply 48 - 72 fl oz (0.88 - 1.32 lbs ai)/A
Grasses and Sedges			
Annual bluegrass Bahiagrass Barley Barnyardgrass Bermudagrass Carpetgrass Crabgrass Cupgrass Dallisgrass Downy bromegrass Fall panicum Fescue	Giant foxtail Goosegrass Green foxtail Guineagrass Johnsongrass (rhizome) Kentucky bluegrass Lovegrass Nutsedge Paragrass Quackgrass Ryegrass	Apply 1 - 2 fl oz (0.02 - 0.04 lb ai)/ gallon of water	Apply 48 - 72 fl oz (0.88 - 1.32 lbs ai)/A

(continued)

		Spot Application	Broadcast Application
Grasses and Sedges *(continued)*			
Sandbur Shattercane Smallflower Alexandergrass (Signalgrass) Smooth bromegrass Stinkgrass	Torpedograss Vaseygrass Wheat Wild oat Windgrass Yellow foxtail	Apply 1 - 2 fl oz (0.02 - 0.04 lb ai)/ gallon of water	Apply 48 - 72 fl oz (0.88 - 1.32 lbs ai)/A

Use Notes

1. Use higher rates within the specified rate range for weed sized listed when vegetation cover is dense or when weeds are growing under stressed conditions including drought or when average temperatures are below 50º F.
2. The addition of 8.5 to 17 pounds of ammonium sulfate (spray grade) per 100 gallons of water (1 to 2% by weight) or 2 to 4 pounds of ammonium sulfate per acre may improve the level of weed control.

MIXING INSTRUCTIONS

LIFELINE herbicide must be mixed with water to make a finished spray solution. Fill the spray tank 1/2 to 3/4 full with water, start agitation, add the appropriate amount of LIFELINE herbicide then add remaining water to fill tank. Mix thoroughly.

Restrictions

- **DO NOT** apply this product through an irrigation system.
- **DO NOT** apply directly to or allow drift to contact desirable green tissue or green, thin, or uncalloused bark of desirable vegetation.
- **DO NOT** allow grazing of vegetation treated with LIFELINE herbicide.

Precautions

LIFELINE herbicide is rainfast in a minimum of one-half hour and an average of 4 hours after application depending upon weed species, environmental conditions, and herbicide application rate.

Plants may be safely planted into LIFELINE herbicide treated areas after spray has dried.

TANK MIXING

LIFELINE herbicide is compatible in tank mixes with many other herbicides. When tank mixing LIFELINE herbicide with other herbicides, follow the label with the most restrictive directions for use and precautions. No label dosage rates may be exceeded. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

A compatibility test must be conducted with any potential tank mix partner. Using a clear glass quart jar, conduct the test as described below:

1. Fill the jar three-quarters full with water.
2. Add the appropriate amount of herbicide in the following order: (a) dry flowable, (b) wettable powder, (c) aqueous suspensions, (d) flowables, (e) liquids and (f) solutions and emulsifiable or liquid concentrates. Shake or gently stir jar after each addition to thoroughly mix.
3. After adding all ingredients, let the mixture stand for 15 minutes and then look for separation, large flakes, precipitates, gels, and heavy oily film on the jar or other signs of incompatibility.
4. If the compatibility test shows signs of incompatibility, do not tank mix the product tested with LIFELINE herbicide.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Do not use or store near heat or open flame. Keep the container tightly closed and dry in a cool, well-ventilated place. Storage temperature must not exceed 125° F. If storage temperature for bulk LIFELINE herbicide is below 32° F, the material must not be pumped until its temperature exceeds 32° F. Protect against direct sunlight.

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

CONTAINER HANDLING:

[Rigid, Non-refillable containers small enough to shake (i.e., with capacities equal to or less than 5 gallons)]

Non-refillable container. Do not reuse or refill this container. Triple rinse container 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. Once container is rinsed, then offer for recycling if available or reconditioning if appropriate; or puncture and dispose of in a sanitary landfill, or by incineration; or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

[Rigid, Non-refillable containers (i.e., with capacities greater than 5 gallons)] triple rinse [or pressure rinse] as follows:

Triple rinse: 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 back 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 and disposal. Repeat this procedure two more times. Then offer for recycling or reconditioning if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Do not cut or weld metal containers.

Pressure rinse: 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 flow begins to drip. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

[All refillable container types (containers with capacities greater than 50 lbs)]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning before refilling is the responsibility of the refiller. This is a sealed returnable container to be used only for LIFELINE herbicide. When this container is empty, it must not be opened, cleaned, or discarded. Empty containers must be returned to the original purchase location.

[Bottom discharge Intermediate Bulk Container (IBC) (containers with capacities greater than 50 lbs)]

Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning before refilling is the responsibility of the refiller. Pressure rinsing the container before final disposal is the responsibility of the person disposing of the container. Empty the remaining contents from the Intermediate Bulk container (IBC) into application equipment or mix tank. Raise the bottom of the IBC by 1.5 inch on the side which is opposite of the bottom discharge valve to promote more complete product removal. Completely remove the top lid of the IBC. Use water pressurized to at least 40 PSI to rinse all interior portions. Continuously pump or drain rinsate into application equipment or rinsate collection system while pressure rinsing. Continue pressure rinsing for 2 minutes or until rinsate becomes clear. Replace the lid and close bottom valve. Contact your Ag retailer for container return, disposal, and recycling recommendations.

SEED DISPOSAL: To dispose of out-of-date or otherwise unmarketable seed from plants, which have been treated with LIFELINE herbicide, broadcast and lightly incorporate seed into field soils using disc or other suitable implement. Any resulting crop may be destroyed by chemical or mechanical means. Alternatively, seed may be destroyed by deep burial, incineration or landfill disposal.

IMPORTANT INFORMATION
READ BEFORE USING PRODUCT

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

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

The Directions for Use of this product reflect the opinion of experts based on field use and tests, and must be followed carefully. It is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of UPL NA Inc. or Seller. Handling, storage, and use of the product by Buyer or User are beyond the control of UPL NA Inc. and Seller. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold UPL NA Inc. and Seller harmless for any claims relating to such factors.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, UPL NA INC. AND SELLER MAKE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ON THIS LABEL.

To the extent consistent with applicable law, UPL NA Inc. or Seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product and **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF UPL NA INC. AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF UPL NA INC. OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

UPL NA Inc. and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of sale and limitations of warranty and of liability, which may not be modified except by written agreement signed by the duly authorized representative of UPL NA Inc.

ESL030920

U-70506-310(012522-9207)

Safety Data Sheet

Preparation Date 29-Apr-2015 **Revision date** 22-Jan-2024 **Revision Number:** 13

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

Identification of the product
Product Description Lifeline Herbicide

Other means of identification
Internal SDS code 12U-901
Registration number(s) 70506-310

Recommended use of the chemical and restrictions on use
Recommended use Herbicide.
Uses advised against Activities contrary to label recommendation

Details of the Supplier of the Safety Data Sheet
Supplier Address
UPL NA Inc.
PO Box 12219
Research Triangle Park, NC 27709-12219

Emergency telephone number
Company Phone Number 1-800-438-6071
Emergency telephone number Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887
Medical: Rocky Mountain Poison and Drug Safety (866) 673-6671 (24hrs)

2. Hazards Identification

Classification

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

Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Reproductive Toxicity	Category 1B
Specific target organ toxicity (repeated exposure)	Category 2

Label elements

EMERGENCY OVERVIEW

DANGER

Hazard Statements
Harmful if inhaled
May damage fertility or the unborn child
May cause damage to organs through prolonged or repeated exposure

Appearance Red	**Physical state** Liquid	**Odor** no data available

Precautionary Statements - Prevention
Do not handle until all safety precautions have been read and understood
Wear cold insulating gloves/face shield/eye protection
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards Not Otherwise Classified (HNOC)
OTHER INFORMATION

3. Composition/information on Ingredients

Chemical name	CAS No	Weight-%
Glufosinate ammonium	Proprietary	20 - 30%
Propylene Glycol	57-55-6	10
2-Butoxyethanol	111-76-2	3.5

If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret.

4. First aid measures

FIRST AID MEASURES

Eye contact Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Skin contact Wash off immediately with plenty of water for at least 15 minutes. Call a poison control center or doctor for treatment advice.

Inhalation Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Ingestion Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice. Call a physician or poison control center immediately.

Protection of First-aiders Use personal protective equipment.

Most Important Symptoms and Effects, Both Acute and Delayed

Most Important Symptoms and Effects no data available.

Indication of Any Immediate Medical Attention and Special Treatment Needed

Notes to physician Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media

Use:. Dry chemical. Carbon dioxide (CO2). Water spray. alcohol-resistant foam.

Unsuitable extinguishing media no data available.

Specific hazards arising from the chemical
In the event of fire and/or explosion do not breathe fumes.

Hazardous combustion products Carbon oxides. Carbon monoxide. Sulfur oxides.

Explosion data

Protective equipment and precautions for firefighters
Use personal protective equipment. 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 Provide adequate ventilation. Avoid contact with skin, eyes and inhalation of vapors. Use personal protective equipment. Wash thoroughly after handling.

Environmental Precautions

Environmental precautions Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for Clean-Up Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

7. Handling and Storage

Precautions for safe handling

Handling Wear personal protective equipment. Do not breathe vapours or spray mist. Avoid contact with skin and eyes. Do not eat, drink or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat. Protect from light. Keep in properly labelled containers. Keep out of the reach of children. Store in an area where cross-contamination with pesticides, fertilizers, food or feed could not occur.

Product is pourable down to -5 C(23 F). At -8 C (17.6 F), the product starts to thicken. Below -8 C (17.6 F), the product will thicken and eventually become a non-pourable crystalline solid. This is completely reversible upon warming the product above -5 C(23 F). The freezing of the product, to where it becomes a non-pourable crystalline solid, does not impact the efficacy of the product.

If product thickens or become solid - allow product to warm to 40 - 70 F (4- 21 C) using drum blankets or hot boxes. Steam may be used to warm however it should not be directly applied. DO NOT use open flame to warm.

incompatible materials Strong acids. Strong oxidizing agents. Bases.

8. Exposure Controls/Personal Protection

Exposure guidelines

Chemical name	ACGIH TLV	OSHA PEL
2-Butoxyethanol	TWA: 20 ppm	TWA: 50 ppm TWA: 240 mg/m^3 (vacated) TWA: 25 ppm (vacated) TWA: 120 mg/m^3 (vacated) S* S*

Engineering controls Investigate engineering techniques to reduce exposures. Local mechanical exhaust ventilation is preferred. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Personal protective equipment

Eye/Face Protection Use eye protection to avoid eye contact. Where there is potential for eye contact have eye flushing equipment available. Safety glasses with side-shields.

Skin protection Wear protective gloves/clothing. Socks and footwear.

Respiratory protection Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical goggles. If exposures cannot be kept at a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure, use an approved full face positive-pressure, self-contained breathing apparatus. Respiratory protection programs must comply with 29 CFR 1910.134. For emergency and other conditions where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive pressure airline with auxilliary self-contained air supply. Respiratory protection programs must comply with 29 CFR 1910.134.

General hygiene considerations

When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use. Wash hands and face before breaks and immediately after handling the product. Wear suitable gloves and eye/face protection.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance Red
Physical state Liquid
Odor no data available
color No information available

Property	VALUES	Remarks/ Method
pH	7	None known
Melting point/freezing point		
Boiling Point/Range		None known
Flash Point	> 212 F / 100 C	None known
Evaporation Rate		None known
Flammability (solid, gas)		None known
Specific gravity	1.12 -1.17	None known
Bulk density		None known
Water solubility		None known
Solubility in Other Solvents	No information available	None known
Partition coefficient: n-octanol/water		None known
Autoignition temperature		None known
Decomposition temperature		None known
Viscosity		None known

9.2 OTHER INFORMATION- NONE

10. Stability and Reactivity

Reactivity
no data available

Chemical stability
Stable under normal conditions. Hazardous polymerisation does not occur.

Possibility of hazardous reactions
None under normal processing.

Conditions to avoid
Keep away from open flames, hot surfaces and sources of ignition.

incompatible materials
Strong acids. Strong oxidizing agents. Bases.

Hazardous decomposition products
Carbon oxides. Carbon monoxide. Oxides of sulfur.

11. Toxicological Information

Information on Likely Routes of Exposure

Product information Lifeline/Interline :
Acute oral LD50 (rat) - >5,000 mg/kg
Acute dermal LD50(rat/rabbit) = >2,000 mg/kg
Acute inhalation LC50 (rat) 4 hr = >3.133 mg/L [>12.5 mg/L 1 hr]
Primary eye irritation (rabbit) = Not an irritant
Primary dermal irritation (rabbit)= Not an irritant
Dermal sensitization = Not a sensitizer

Inhalation HARMFUL IF INHALED.

Eye contact Not classified.

Skin contact Based on available data, the classification criteria are not met. Not a skin irritant or sensitizer.

Ingestion Based on available data, the classification criteria are not met.

Information on Toxicological Effects

Symptoms No information available.

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

Sensitization No information available.
Mutagenic effects no data available.
Carcinogenicity The information below indicates whether any agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
2-Butoxyethanol 111-76-2	A3	Group 3		-

Reproductive effects Not Available.
STOT - Single Exposure no data available.
STOT - Repeated Exposure no data available.
Chronic toxicity Avoid repeated exposure.
Target organ effects Respiratory System, EYES, skin, Central Nervous System (CNS).
Aspiration hazard No information available.

Numerical Measures of Toxicity - Product information

LD50 Oral > 5000 mg/kg (rat)
LD50 Dermal > 2000 mg/kg (rat)

12. Ecological Information

ecotoxicity

Do not apply directly to water to areas where surface water is present or to intertidal areas below the mean high water mark. Do not clean equipment or dispose of equipment washwater in a manner that will contaminate water resources or areable land. Do not apply when weather conditions favor drift from treated areas.

Persistence/Degradability
no data available.

Bioaccumulation/ Accumulation
Bioaccumulative potential.

Chemical name	Log Pow
Propylene Glycol 57-55-6	-1.07
2-Butoxyethanol 111-76-2	0.81

Other Adverse Effects
no data available

13. Disposal Considerations

Waste Treatment Methods

Waste Disposal Method Pesticide wastes can be hazardous. Improper disposal of excess pesticide or rinsate is a violation of Federal law. If the wastes cannot be disposed of by use or according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Contaminated packaging Refer to product label.

14. Transport Information

DOT
NOT REGULATED

TDG
NOT REGULATED

IATA
NOT REGULATED

IMDG
NOT REGULATED

15. Regulatory Information

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:

signal word CAUTION

Ventilation Control PESTICIDE APPLICATORS & WORKERS THESE WORKERS MUST REFER TO PRODUCT LABELING AND DIRECTIONS FOR USE IN ACCORDANCE WITH EPA WORKER PROTECTION STANDARD 40 CFR PART 170.

Harmful if absorbed through the skin. Keep out of Reach of Children.

International Inventories

USINV	Present
DSL/NDSL	Not present
EINECS/ ELINCS	Not Present
ENCS	Not Present
China	Not Present
KECL	Not Present
PICCS	Not Present
AICS	Not Present
TSCA	Not Present

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 Commercial Chemical Substances/EU 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

Federal Regulations

SARA 313

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

CERCLA

Not applicable

CERCLA

SARA Product RQ 0

RCRA

Pesticide Information

Component	FIFRA - Restricted Use	FIFRA - Pesticide Product Other Ingredients	FIFRA - Listing of Pesticide Chemicals	California Pesticides - Restricted Materials
Glufosinate ammonium (20 - 30%)			X	
Propylene Glycol 57-55-6 (10)			X	
2-Butoxyethanol 111-76-2 (3.5)			X	

State Regulations

State Right-to-Know

Chemical name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Propylene Glycol - 57-55-6		X	X		
2-Butoxyethanol - 111-76-2	X	X	X		

International regulations

U.S. EPA Label information

EPA Pesticide registration number 70506-310

16. Other Information

NFPA **HEALTH** 1 **flammability** 1 **Instability** 0 **Physical hazard** -

Preparation Date 29-Apr-2015
Revision date 22-Jan-2024
Revision Summary
Update section 7 Update Section 9 Update section 11

Disclaimer

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End of SDS

SAFETY DATA SHEET

Issue Date 17-Nov-2014 **Revision Date** 07-May-2019 **Version** 5

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

Product identifier.
Product Name Atrimmec® Plant Growth Regulator

Other means of identification
Product Code PBI FP 6621076
EPA Pesticide Registration Number 2217-776
Product Size 4/1 U. S. Gal.

Recommended use of the chemical and restrictions on use
Recommended Use Growth regulator
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Address	Company Name	Manufacturer
PBI-Gordon Corporation P.O. Box 860350 Shawnee, KS 66286	PBI-Gordon Corporation P.O. Box 860350 Shawnee, KS 66286	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)

Skin Corrosion/Irritation Category	Category 3
Serious eye damage/eye irritation	Category 2B
Acute Aquatic Toxicity	Category 3
Flammable liquids	Category 3

Label elements

Emergency Overview

Signal word
Warning

Hazard statements
- Causes mild skin irritation
- Causes eye irritation
- Harmful to aquatic life
- Flammable liquid and vapor

Appearance Liquid **Physical state** Liquid **Odor** No discernible odor

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Avoid breathing dust/fume/gas/mist/vapors/spray
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
Wear protective gloves/eye protection/face protection

Precautionary Statements - Response
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
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
In case of fire: Use CO2, dry chemical, or foam to extinguish

Precautionary Statements - Storage
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-%
Dikegulac-sodium	52508-35-7	18.5
Trade Secret	Trade secret	2-5*
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

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. Get medical attention immediately if symptoms occur.

Ingestion Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. 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.

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 Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. See section 8 for more information.

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

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.

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 contact with skin, eyes or clothing. Avoid breathing vapors or mists. Use according to package label instructions. Handle in accordance with good industrial hygiene and safety practice. 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits .

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Trade Secret	Ceiling: 2 mg/m³	TWA: 2 mg/m³ (vacated) Ceiling: 2 mg/m³	IDLH: 10 mg/m³ Ceiling: 2 mg/m³
Trade Secret	STEL: 15 ppm TWA: 10 ppm	TWA: 10 ppm TWA: 25 mg/m³ (vacated) TWA: 10 ppm (vacated) TWA: 25 mg/m³	IDLH: 50 ppm TWA: 10 ppm TWA: 25 mg/m³ STEL: 15 ppm STEL: 37 mg/m³

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Liquid
Color	Light blue
Odor	No discernible odor
Odor threshold	No information available

Property	Values	Remarks • Method
pH	9.5	
Melting point/freezing point	No data available	None known
Boiling point / boiling range	100 °C / 212 °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	1.0951	
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

Oxidizing properties	No information available
Liquid Density	9.12 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
None known.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation May cause irritation of respiratory tract.

Eye contact Causes eye irritation.

Skin contact Causes mild skin irritation.

Ingestion May be harmful if swallowed.

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Dikegulac-sodium 52508-35-7	= 18 g/kg (Rat)	> 1 g/kg (Rabbit) > 1 g/kg (Rat) > 2000 mg/kg (Rat)	> 2 mg/L (Rat) 4 h
Trade Secret	= 325 mg/kg (Rat)	= 1350 mg/kg (Rabbit)	-
Trade Secret	= 1020 mg/kg (Rat)	-	-
Trade Secret	= 3310 mg/kg (Rat)	= 1060 mg/kg (Rabbit)	= 11.4 mg/L (Rat) 4 h

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity - Product Information

Unknown Toxicity
27 % of the mixture consists of ingredient(s) of unknown toxicity
27 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
27 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
27 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

LD50 Oral > 5000 mg/kg Rat-female
LD50 Dermal > 5000 mg/kg (rat)

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

Skin corrosion/irritation Causes mild skin irritation.

Serious eye damage/eye irritation Causes eye irritation.

Respiratory or skin sensitization Not a skin sensitizer.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Target Organ Effects Respiratory system, Eyes, Skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity Harmful to aquatic life.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Trade Secret	-	45.4: 96 h Oncorhynchus mykiss mg/L LC50 static	-	-
Trade Secret	-	79: 96 h Pimephales promelas mg/L LC50 static 75: 96 h Lepomis macrochirus mg/L LC50 static	EC50 = 8.8 mg/L 15 min EC50 = 8.8 mg/L 25 min EC50 = 8.8 mg/L 5 min	47: 24 h Daphnia magna mg/L EC50 65: 48 h Daphnia magna mg/L EC50 Static

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	Disposal should be in accordance with applicable regional, national and local laws and regulations. Should not be released into the environment.
Contaminated packaging	Do not reuse empty containers.
US EPA Waste Number	D001, See Section 2: Hazards not otherwise classified (HNOC).

14. TRANSPORT INFORMATION

DOT	Not regulated
TDG	Not regulated
MEX	Not regulated
ICAO (air)	Not regulated
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. (Dikegulac-sodium), 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. (DIKEGULAC-SODIUM), 9, III, MARINE POLLUTANT

15. REGULATORY INFORMATION

U.S. EPA Label Information

EPA Pesticide Registration Number 2217-776

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
Caution
Keep out of the reach of children
PRECAUTIONARY STATEMENTS
Hazards to Humans and Domestic Animals
CAUTION: Causes moderate eye irritation. Avoid contact with eyes or clothing.
Environmental Hazards

For terrestrial uses: Do not apply directly to water, or to areas where water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

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	Not 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 does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

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
Trade Secret	5000 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
Trade Secret	1000 lb	-
Trade Secret	5000 lb	-

US State Regulations

U.S. State Right-to-Know Regulations

US State Regulations

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

16. OTHER INFORMATION

NFPA	**Health hazards** 2	**Flammability** 1	**Instability** 0	**Physical and Chemical Properties** -
HMIS	**Health hazards** 2	**Flammability** 1	**Physical hazards** 0	**Personal protection** X

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

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name	SPECTICLE® G
Product code (UVP)	84118273
SDS Number	102000029955
EPA Registration No.	432-1523

Relevant identified uses of the substance or mixture and uses advised against

Use	Herbicide
Restrictions on use	See product label for restrictions.

Information on supplier

Supplier	Bayer Environmental Science A division of Bayer CropScience LP 500 Centregreen Way, Suite 400 Cary, NC 27513 USA
Responsible Department	Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days)	1-800-334-7577
Product Information Telephone Number	1-800-331-2867

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
Acute toxicity(Inhalation): Category 4
Carcinogenicity: Category 1B

Labelling in accordance with regulation HCS 29CFR §1910.1200

Signal word: Danger

Hazard statements
Harmful if inhaled.

May cause cancer.

Precautionary statements
Avoid breathing dust.
Use only outdoors or in a well-ventilated area.
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.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/physician if you feel unwell.
IF exposed or concerned: Get medical advice/ attention.
Store locked up.
Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)
No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Indaziflam	950782-86-2	0.0224
Propyl-S-(-)-2-Hydroxy Propionate	53651-69-7	1.1
2-methylpentane-2,4-diol	107-41-5	2.0
Crystalline quartz (respirable)	14808-60-7	0.96

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation
Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Skin contact
Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Eye contact
Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Water spray, Carbon dioxide (CO2), Dry powder, Foam

Unsuitable High volume water jet

Special hazards arising from the substance or mixture Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for firefighters Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

Further information Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.

Flash point Not applicable

Auto-ignition temperature No data available

Lower explosion limit Not applicable

Upper explosion limit Not applicable

Explosivity No data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations.

Additional advice	Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.
Reference to other sections	Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.
Hygiene measures	Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Indaziflam	950782-86-2	0.56 mg/m3 (TWA)		OES BCS*
2-methylpentane-2,4-diol	107-41-5	125 mg/m3/25 ppm (CEILING)	1989	OSHA Z1A
2-methylpentane-2,4-diol (Aerosol, inhalable.)	107-41-5	10 mg/m3 (STEL)	03 2017	ACGIH
2-methylpentane-2,4-diol (Vapor fraction)	107-41-5	50 ppm (STEL)	03 2017	ACGIH
2-methylpentane-2,4-diol (Vapor fraction)	107-41-5	25 ppm (TWA)	03 2017	ACGIH
2-methylpentane-2,4-diol	107-41-5	125 mg/m3/25 ppm (Ceil_Time)	2010	NIOSH

2-methylpentane-2,4-diol	107-41-5	125 mg/m3/25 ppm (CEILING)	06 2008	TN OEL
2-methylpentane-2,4-diol	107-41-5	125 mg/m3/25 ppm (CEILING)	08 2010	US CA OEL
Crystalline quartz (respirable) (Respirable fraction.)	14808-60-7	0.025 mg/m3 (TWA)	02 2012	ACGIH
Crystalline quartz (respirable) (Respirable dust.)	14808-60-7	0.05 mg/m3 (REL)	2016	NIOSH
Crystalline quartz (respirable)	14808-60-7	0.05 mg/m3 (TWA)	03 2016	OSHA
Crystalline quartz (respirable)	14808-60-7	0.025 mg/m3 (OSHA_ACT)	03 2016	OSHA
Crystalline quartz (respirable) (Respirable dust.)	14808-60-7	0.05 mg/m3 (PEL)	03 2016	OSHA Z1
Crystalline quartz (respirable) (Respirable dust.)	14808-60-7	0.050 mg/m3 (TWA)	01 2019	TN OEL
Crystalline quartz (respirable) (Respirable dust.)	14808-60-7	0.05 mg/m3 (TWA PEL)	10 2016	US CA OEL
Crystalline quartz (respirable) (Respirable.)	14808-60-7	2.4millions of particles per cubic foot of air (TWA)	2000	Z3
Crystalline quartz (respirable) (Respirable.)	14808-60-7	0.1 mg/m3 (TWA)	2000	Z3

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

Exposure controls

Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection	Chemical resistant nitrile rubber gloves
Eye protection	Safety glasses with side-shields
Skin and body protection	Wear long-sleeved shirt and long pants and shoes plus socks.
General protective measures	Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	grey to tan
Physical State	granular
Odor	characteristic
Odour Threshold	No data available
pH	ca. 4 - 7 (10 %)
Viscosity, kinematic	No data available
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	No data available
Bulk density	45 - 55 lb/ft³
Evaporation rate	Not applicable
Boiling Point	Not applicable
Melting / Freezing Point	Not applicable
Water solubility	dispersible
Minimum Ignition Energy	No data available
Decomposition temperature	Stable under normal conditions.
Self-accelarating decomposition temperature (SADT)	No data available
Partition coefficient: n-octanol/water	Not applicable
Flammability	No data available
Flash point	Not applicable
Auto-ignition temperature	No data available
Lower explosion limit	Not applicable

Upper explosion limit	Not applicable
Explosivity	No data available
Particle size	No data available

SECTION 10: STABILITY AND REACTIVITY

Reactivity

Thermal decomposition	Stable under normal conditions.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	No incompatible materials known.
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Inhalation, Eye contact, Skin contact, Ingestion
Immediate Effects	
Eye	May cause mild irritation to eyes.
Skin	May cause mild irritation to the skin.

Information on toxicological effects

Acute oral toxicity	LD50 (Rat) > 5,000 mg/kg
Acute inhalation toxicity	LC50 (Rat) > 2.09 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. highest concentration tested
	LC50 (Rat) > 8.36 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50.
Acute dermal toxicity	LD50 (Rat) > 5,000 mg/kg
Skin corrosion/irritation	Slight irritant effect - does not require labelling. (Rabbit)
Serious eye damage/eye	Minimally irritating. (Rabbit)

irritation

Respiratory or skin sensitisation Skin: Non-sensitizing. (Guinea pig)

Assessment STOT Specific target organ toxicity – single exposure

Indaziflam: May cause damage to organs in nervous system following oral route.

Assessment STOT Specific target organ toxicity – repeated exposure

Indaziflam caused neurobehavioral effects and/or neuropathological changes in subchronic studies in rats and dogs. Indaziflam: May cause damage to organs (Nervous system) through prolonged or repeated exposure.

Assessment mutagenicity

Indaziflam was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Indaziflam was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

Crystalline quartz (respirable)	14808-60-7	Group A2

NTP

Crystalline quartz (respirable)	14808-60-7

IARC

Crystalline quartz (respirable)	14808-60-7	Overall evaluation: 1

OSHA

None.

Assessment toxicity to reproduction

Indaziflam was not a primary reproductive toxicant in a two-generation study in rats.

Assessment developmental toxicity

Indaziflam did not cause developmental toxicity in rats and rabbits.

Aspiration hazard

Based on available data, the classification criteria are not met.

Further information

Acute toxicity studies have been bridged from a similar formulation(s).
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish LC50 (Oncorhynchus mykiss (rainbow trout)) 0.572 mg/l
Exposure time: 96 h
The value mentioned relates to the active ingredient indaziflam.

Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) > 9.88 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient indaziflam.
Toxicity to aquatic plants	IC50 (Raphidocelis subcapitata (freshwater green alga)) 0.134 mg/l Growth rate; Exposure time: 96 h The value mentioned relates to the active ingredient indaziflam.
Toxicity to other organisms	LD50 (Eisenia fetida (earthworms)) > 1,000 mg/kg Exposure time: 14 d The value mentioned relates to the active ingredient indaziflam.
Biodegradability	Indaziflam: Not rapidly biodegradable
Koc	Indaziflam: Koc: 496
Bioaccumulation	Indaziflam: Bioconcentration factor (BCF) 66 Does not bioaccumulate.
Mobility in soil	Indaziflam: Moderately mobile in soils
Environmental precautions	Do not allow to get into surface water, drains and ground water. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility. Dispose in accordance with all local, state/provincial and federal regulations.
Contaminated packaging	Do not re-use empty containers. Completely empty container into application equipment, then dispose of empty container in a sanitary landfill, by incineration or by other procedures approved by state/provincial and local authorities. If burned, stay out of smoke. Follow advice on product label and/or leaflet.
RCRA Information	Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14: TRANSPORT INFORMATION

49CFR	Not dangerous goods / not hazardous material

IMDG

UN number	**3077**
Class	9
Packaging group	III
Marine pollutant	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (INDAZIFLAM MIXTURE)

IATA

UN number	**3077**
Class	9
Packaging group	III
Environm. Hazardous Mark	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (INDAZIFLAM MIXTURE)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Freight Classification:	COMPOUNDS, TREE OR WEED KILLING, N.O.I. other than poison, HAVING A DENSITY OF 20 LBS OR GREATER PER CUBIC FOOT

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 432-1523
US Federal Regulations
TSCA list

Bentonite	1302-78-9
2-methylpentane-2,4-diol	107-41-5
Propyl-S-(-)-2-Hydroxy Propionate	53651-69-7

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
No export notification needs to be made.
SARA Title III - Section 302 - Notification and Information
Not applicable.
SARA Title III - Section 313 - Toxic Chemical Release Reporting
None.

US States Regulatory Reporting
CA Prop65
WARNING: This product contains a chemical known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Crystalline quartz (respirable)	14808-60-7

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

2-methylpentane-2,4-diol	107-41-5	CA, MN, RI

None.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: The following sections have been revised: Section 2: Hazards Identification. Section 3: Composition / Information on Ingredients. Section 8: Exposure Controls / Personal Protection. Section 11: Toxicological Information. Section 14: Transport Information. Reviewed and updated for general editorial purposes.

Revision Date: 05/22/2020