


Port Jervis

SCHOOL DISTRICT

To: Board of Education
Thomas Bongiovi, Superintendent of Schools

cc: Lorelei Case, Assistant Superintendent for Business

From: Donald R. Preiss, Director of Facilities 

Date: March 24, 2017

Re: Herbicide Treatment at Glennette Field, PJMS

Glennette Field has become infested with a weed commonly known as Yellow Nutsedge. This form of weed is troublesome, difficult to control, highly invasive and is often found in turf areas. It is very noticeable on a turf field due to its rapid rate of growth and yellow color.

In order to eliminate the unsightly appearance of nutsedge and its continuous spread, application of Dismiss turf herbicide should be performed. The cost for application is \$405.00 and can be done by Farmside Landscape & Design on Friday, May 26, 2017.

According to the NYS Education Law, we are required to seek and obtain permission from the Board of Education to apply herbicides/pesticides. Copies of Safety Data Sheets (SDS) and directions for use of Dismiss herbicide are attached for your review.

We hereby request board approval for application of herbicide at Glennette Field, Port Jervis Middle School, on Friday, May 26, 2017.

Respectfully submitted for your consideration.

DRP/lh



Farmside
Landscape & Design
Blending Design & Nature

National Award Winning
Landscape Construction
Lawn Maintenance
Plant Health Care
Turf Care

March 6, 2017

Port Jervis Schools
Mr. Donald R. Preiss
Director of Building & Grounds
10 Route 209
Port Jervis, NY 12771
845-858-3211

2017 Lawn Care Applications
Scope of Work

Glennette Field: \$ 510.00

- post emergent Broadleaf weed and crab grass control with Last call* herbicide to be done mid- late august

Chase field-if needed: \$ 490.00

- post emergent Broadleaf weed and crab grass control with Last call* herbicide to be done mid- late august

Glennette field: (\$ 405.00)

- ~~(Nut Sedge control with Dismiss specialty herbicide (sulfentrazone) to be done mid-late June)~~



Facilities Planning

School Pesticide Neighbor Notification Law Reminder

The School Pesticide Neighbor Notification Law requires and outlines an annual notification process for all faculty, staff, and persons in parental relation in public and nonpublic elementary and secondary schools. The law covers all instructional and administrative buildings and grounds, including playgrounds, athletic fields, and bus garages. The following questions and answers address issues related to the School Pesticide Neighbor Notification process.

When did the law become effective?

- The law became effective on July 1, 2001.

Who must comply with the new Pesticide Neighbor Notification Law?

- The law applies to all public and nonpublic schools and BOCES.

What is a pesticide?

- Part 325.1 of New York State Department of Environmental Conservation (DEC) regulation defines pesticides as: any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, fungi, weeds, or other forms of plant or animal life or viruses, except viruses on or in living humans or other animals, which DEC shall declare to be a pest. The DEC definition of pesticides includes products classified as insecticides, rodenticides, fungicides, and herbicides.

What types of school facilities does the law effect?

- The law covers all instructional and administrative buildings and grounds. This includes all playgrounds, athletic fields, and bus garages.

Who is responsible for ensuring compliance with the law?

- At the local level, each school district and nonpublic school must designate an employee of the school to act as the school pesticide representative. This person is the school contact for any pesticide application questions or issues.
- At the State level, the Education Department is charged with ensuring compliance.

Are there penalties associated with non-compliance?

- Yes. The State Education Department may withhold district state aid monies if it is proven that the school district or nonpublic school has failed to adopt the provisions specified in the law. Schools will be provided thirty days notice of this withholding during which time they may present evidence of extenuating circumstances related to their alleged non-compliance.

Are all pesticide applications covered under this law?

- No. The following applications are excluded from notification:

- anti-microbial pesticides and products
- aerosol products with a directed spray in containers of 18 fluid ounces or less when used to protect individuals from an imminent threat from stinging and biting insects, including venomous spiders, bees, wasps, and hornets
- nonvolatile rodenticides in tamper resistant bait stations or in areas inaccessible to children
- silica gels and other nonvolatile ready-to-use paste, foam, and gel formulations of insecticides in areas inaccessible to children
- nonvolatile insecticidal baits in tamper resistant bait stations or in areas inaccessible to children
- boric acid and disodium octaborate tetrahydrate
- a product designated by the US Environmental Protection Agency (EPA) as a biopesticide (www.epa.gov/pesticides/biopesticides/)
- a product classified by the EPA as an exempt material under 40 CFR 152.25
- an emergency application of a pesticide to protect against an imminent threat to human health
- a pesticide application which occurs when the facility remains unoccupied for a continuous seventy-two hours following the application.

Notification Guidance

The School Pesticide Neighbor Notification Law and Commissioner's Regulation 155.24 cites specific parties who must be notified, as well as the times and circumstances related to the notification process. Likewise, Commissioner's Regulation 155.24 requires a notification process during the summer school period. The following describes these processes.

School Year Notification Requirements

Beginning of Each School Year

A written notice must be provided to all students, persons in parental relation, and staff at the beginning of each school year with a statement that pesticide applications may take place during the upcoming school year. This notice must include the name of the school representative to contact for further information. The basics of the school IPM program should also be explained at this time. The notice must offer individuals an opportunity to register to receive a written notification at least forty-eight hours prior to pesticide applications, including instructions on how to register with the school to be on the notification list. Individuals may request that their name be added to the registry at any point during the school year.

This notification may be provided in any of the following methods on or before the end of the first week of school:

- a written notice provided directly to students and staff
- a written notice delivered in a receptacle designated for specific students and staff
- a notice mailed to the student's or staff's home address
- a notice in a school newsletter

If a student enrolls or if a person commences employment after the beginning of the school year, the notification must be provided within one week of enrollment or start of employment.

Forty-Eight Hour Registry Notification Protocol

Not less than forty-eight hours prior to a pesticide application, individuals on the forty-eight hour registry must be provided with written notification containing the following information:

- the specific date and location of the application (outdoor applications may include an alternate date due to potential weather conditions)
- the name of the product, including the EPA pesticide registration number
- the name and phone number of the school representative to contact for information

The forty-eight hour written notification must also include the following statement:

This notice is to inform you of a pending pesticide application to a school facility. You may wish to discuss with the designated school representative what precautions are being taken to protect your child from exposure to these pesticides. Further information about the product(s) being applied, including any warnings that appear on the label of the pesticide(s) that are pertinent to the protection of humans, animals, or the environment, can be obtained by calling the National Pesticide Telecommunications Network Information Line at 1-800-858-7378 or the New York State Department of Health Center for Environmental Health Information Line at 1-800-458-1158.

The written notification may be provided in any of the following methods:

- a notice provided directly to persons on the registry
- a notice delivered in a receptacle designated for persons on the registry
- a notice mailed to the home address of persons on the registry
- a notice sent electronically to persons on the registry
- a notice sent by FAX to persons on the registry

The notification must also be posted in a public location within the relevant facility.

Emergency Pesticide Application Protocol

If an emergency pesticide application is necessary to protect against an imminent threat to human health, a good faith effort must be made to supply the written notification to individuals on the forty-eight hour registry, prior to the actual application.

A notification must also be provided to the State Department of Health with the following information:

- the name of the person making the pesticide application
- the pesticide business registration number or certified applicator number of the person making the application
- the date and location of the application
- the name of the product, including the EPA pesticide registration number
- the reason for the pesticide application

Pesticide Application Summary Reports

All staff and persons in parental relation must be provided with a written summary of pesticide applications three times each school year at the following intervals:

- within ten days of the end of the school year

- within two school days of the end of winter recess
- within two school days of the end of spring recess

The written summary must include the following information for the period covered since the previous written summary report:

- the date and location of pesticide applications
- the names of the products used
- a reminder that schools must offer individuals an opportunity to register to receive a written notification forty-eight hours prior to pesticide applications, including instructions on how to register with the school to be on the notification list
- information on how to obtain further information about the products were applied, including any warnings that appear on the label of the pesticide(s) that are pertinent to the protection of humans, animals, or the environment
- the name and phone number of the school representative to contact for additional information.

Question: If a school does not use any pesticide products in buildings or grounds, other than those cited as exempt under Education Law 409-H, is the school still required to provide follow-up written notifications to all persons in parental relation and staff at the following intervals: within ten days of the end of the school year; and within two days of the end of winter recess, spring recess, and summer school?

Answer: No, however if an emergency application is necessary to protect against an imminent threat to human health, the school must make a good faith effort to notify all persons in parental relation and staff in writing prior to the emergency application. If the product used falls under those classified as exempt under Education Law 409-H, the notification is not required. Schools must still provide the initial written notification to all persons in parental relation and staff at the beginning of the school year or summer school session informing them of the name and phone number of the school pesticide representative to contact for further information on the school's pest management policies and procedures.

Summer School Notification Requirements

Beginning of Summer School

A written notice must be provided to students, persons in parental relation, and staff enrolled, employed, or involved in summer school at the beginning of the summer school session with a statement that pesticide applications may take place during summer school, including the name of a school representative to contact for further information.

The notice must offer individuals an opportunity to register to receive a written notification at least forty-eight hours prior to pesticide applications, including instructions on how to register with the school to be on the notification list. Individuals may request that their name be added to the registry at any point during the summer school session.

This notification may be provided in any of the following methods on or before the end of the first week of the summer school session:

- a written notice provided directly to students and staff

- a written notice delivered in a receptacle designated for specific students and staff
- a notice mailed to the student's or staff's home address
- a notice in a school newsletter

If a student enrolls or if a person commences employment after the beginning of the summer school session, the notification must be provided within one week of their enrollment or start of employment.

Summer School Forty-Eight Hour Registry Notification Protocol

Not less than forty-eight hours prior to a pesticide application, individuals on the summer school forty-eight hour registry must be provided with written notification with the following information:

- the specific date and location of the application (outdoor applications may include an alternate date due to potential weather conditions)
- the name of the product, including the EPA pesticide registration number
- the name and phone number of a school representative to contact for information

The forty-eight hour written notification must also include the following statement:

This notice is to inform you of a pending pesticide application to a school facility. You may wish to discuss with the designated school representative what precautions are being taken to protect your child from exposure to these pesticides. Further information about the product(s) being applied, including any warnings that appear on the label of the pesticide(s) that are pertinent to the protection of humans, animals, or the environment, can be obtained by calling the National Pesticide Telecommunications Network Information Line at 1-800-858-7378 or the New York State Department of Health Center for Environmental Health Information Line at 1-800-458-1158.

This written notification may be provided in any of the following methods:

- a notice provided directly to persons on the registry
- a notice delivered in a receptacle designated for persons on the registry
- a notice mailed to the home address of persons on the registry
- a notice sent electronically persons on the registry
- a notice sent by FAX to persons on the registry

The notification must also be posted in a public location within the relevant facility.

Summer School Emergency Pesticide Application Protocol

If an emergency pesticide application is necessary during summer school to protect against an imminent threat to human health, a good faith effort must be made to supply the written notification to individuals on the forty-eight hour registry prior to the actual application.

A notification must also be provided to the State Department of Health with the following information:

- the name of the person making the pesticide application
- the pesticide business registration number or certified applicator number of the person making the application
- the date and location of the application

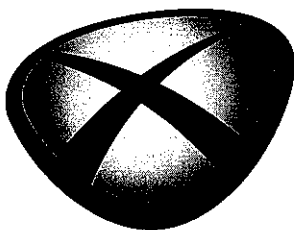
- the name of the product, including the EPA pesticide registration number
- the reason for the pesticide application

Summer School Pesticide Application Summary Report

All staff and persons in parental relation enrolled, employed, or involved in summer school must be provided with a written summary of pesticide applications within two days of the end of summer school.

The summary must include the following information for the summer school period:

- the date and location of pesticide applications
- the names of the products used
- a reminder that schools must offer individuals an opportunity to register to receive a written notification forty-eight hours prior to pesticide applications, including instructions on how to register with the school to be on the notification list
- information on how to obtain further information about the products were applied, including any warnings that appear on the label of the pesticide(s) that are pertinent to the protection of humans, animals, or the environment
- the name and phone number of a school representative to contact for additional information.



Dismiss™

TURF HERBICIDE

For Selective Weed Control in Turf Sites Including Residential and Institutional Lawns, Athletic Fields, Commercial Sod Farms, Golf Course Fairways and Roughs.

EPA Reg. No 279-3295

EPA Est. 279-IL-1

Active Ingredient:	By Wt.
Sulfentrazone*	39.6%
Other Ingredients:	60.4%
	100.0%

*N-[2,4-dichloro-5-[4-(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]phenyl]methanesulfonamide.
Contains 4.0 pounds of active ingredient per gallon.
U.S. Patent No. 4,818,275

KEEP OUT OF REACH OF CHILDREN CAUTION

See other panels for additional precautionary information.



FMC Corporation
Agricultural Products Group
1735 Market Street
Philadelphia PA 19103

Net Contents:

2-25-08-C

FIRST AID	
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for further treatment advice.
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Do not give any liquid to the person. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-331-3148 for emergency medical treatment information.	
For Information Regarding the Use of this Product Call 1-800-321-1FMC (1362).	

PRECAUTIONARY STATEMENTS Hazards to Humans (and Domestic Animals) CAUTION

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

Personal Protective Equipment (PPE)

Applicators and other handlers must wear: long-sleeved shirt and long pants, waterproof gloves, and shoes plus socks.

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

User Safety Recommendations:

Users should:

- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Environmental Hazards

This pesticide is toxic to marine/estuarine invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to terrestrial and aquatic plants in neighboring areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

Groundwater advisory: This chemical is known to leach through soil into groundwater under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Do not use on coarse soils classified as sand which have less than 1% organic matter.

Surface water advisory: Sulfentrazone can contaminate surface water through spray drift. Under some conditions, sulfentrazone may also have a high potential for runoff into surface water (primarily via dissolution in runoff water), for several to many months post-application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, areas overlying extremely shallow groundwater, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-lying tile drainage systems that drain to surface waters.

DIRECTIONS FOR USE

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

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

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

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: Coveralls over long-sleeved shirt and long pants, chemical-resistant gloves made of any waterproof material, and shoes plus socks.

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Re-entry Statement: Do not allow people (other than applicator) or pets on treatment area during application. Do not enter treatment area until spray has dried.

STORAGE AND DISPOSAL

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

Pesticide Storage

Store product in original container only, away from other pesticides, fertilizer, food or feed. Store in a cool, dry place and avoid excess heat.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. Call FMC: (800) 331-3148.

To confine spill: If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

Pesticide Disposal

If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional office for guidance.

Container Disposal

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

GENERAL INFORMATION

Turf Use Instructions

Dismiss turf herbicide is a selective post emergence herbicide which controls broadleaf weeds and sedges in established turf areas including, but not limited to, residential and institutional lawns, athletic fields, commercial sod farms, golf course fairways and golf course roughs.

Dismiss turf herbicide is formulated as a flowable (suspension concentrate) containing 4 lbs of active ingredient per gallon. The mode of action of Dismiss turf herbicide involves uptake by both weed roots and shoots.

Mixing and Application Instructions

General handling instructions

This product may not be mixed or loaded within 50 feet of any wells (including abandoned wells and drainage wells), sink holes, perennial or intermittent streams and rivers, and natural or impounded lakes and reservoirs. This setback does not apply to properly capped or plugged abandoned wells and does not apply to impervious pad or properly diked mixing/loading areas.

Operations that involve mixing, loading, rinsing or washing of this product into or from pesticide handling or application equipment or containers within 50 feet of any well, are prohibited unless conducted on an impervious pad constructed to withstand the weight of the heaviest load that may be positioned on or moved across the pad. Such a pad shall be designed and maintained to contain any product spills or equipment leaks, container or equipment rinse or wash water, and rainwater that may fall on the pad. Surface water shall not be allowed to either flow over or from the pad, which means the pad must be self contained. The pad shall be sloped to facilitate material removal. An unroofed pad shall be of sufficient capacity to contain at a minimum 110% of the capacity of the largest pesticide container or application equipment on the pad. A pad that is covered by a roof of sufficient size to completely exclude precipitation from contact with the pad shall have a minimum containment capacity of 100% of the capacity of the largest pesticide container or application equipment on the pad. Containment capacities as described above shall be maintained at all times. The above specific minimum containment capacities do not apply to vehicles when delivering pesticide shipments to the mixing/loading site. States may have in effect additional requirements regarding wellhead setbacks and operational containment.

Product must be used in a manner which will prevent back siphoning in wells, spills or improper disposal of excess pesticide, spray mixtures or rinsates.

SPRAY TANK PREPARATION

It is important that spray equipment is clean and free of existing pesticide deposits before using this product. Follow the spray tank clean out procedures specified on the label of product previously applied before adding Dismiss turf herbicide to the tank.

Dismiss turf herbicide is a suspension concentrate intended for dilution with water. In certain applications, liquid fertilizer may replace water as diluent.

MIXING WITH WATER

For best results, fill spray tank with one fourth of the volume of clean water needed for the area to be treated. Start the agitation system and add Dismiss turf herbicide to the tank. Make sure Dismiss turf herbicide is thoroughly mixed before application or before adding another product to the spray tank.

USE OF SURFACTANTS

Temporary discoloration of some turf types may result from use of surfactants or adjuvants with Dismiss Turf Herbicide. High temperatures

and high relative humidity may increase the risk of temporary discoloration. Use of surfactants is not recommended.

MIXING WITH LIQUID FERTILIZERS

Utilize local recommendations for sources and rates of fertilizer and refer to mixing directions on the fertilizer labels (e.g. UAN or urea solutions). Determine the compatibility of this product with the desired fluid fertilizer by mixing small proportional quantities in advance (See the "TANK MIXTURES COMPATIBILITY" section below)

TANK MIXTURES COMPATIBILITY

Dismiss turf herbicide is believed to be compatible with most herbicides, fungicides, insecticides, growth regulators, liquid fertilizers and spray adjuvants commonly used in turf and ornamental plant management. However, when preparing a new tank mix conduct an appropriate compatibility test by mixing proportional amounts of all spray ingredients in a test vessel (jar) prior to tank mixing with other products. Shake the mixture vigorously and allow it to stand for five to ten minutes. Rapid precipitation of the ingredients and failure to re-suspend when shaken indicates that the mixture is incompatible and should not be applied. Provided the jar test indicates the mixture to be compatible, prepare the tank mixture as follows: Fill the tank one fourth full with water. With the agitator operating, add the recommended amounts of ingredients using the following order: dry granules first, and liquid suspensions (flowables) second. As the agitation continues and the tank is filled with water add EC products third followed by the addition of water soluble products.

Read and observe mixing instructions of all tank mix partners. Also read each product's label for Directions for Use, Precautionary Statements and Restrictions and Limitations. The most restrictive labeling applies in all tank mixtures. No label dosage rate should be exceeded. Tank mixture recommendations are for use only in states where the companion products and application site are registered. In addition, certain states or geographical regions may have established dosage rate limitations. Consult your state Pesticide Control Agency for additional information regarding the maximum use rates.

Use Dismiss turf herbicide spray mixture immediately after mixing. Do not store the mixture.

Ground Equipment

Power sprayers: Uniform and accurate spray coverage requires proper calibration and operation of spray equipment. The use of marker dyes or foams can improve application accuracy. Boom sprayers equipped with appropriate flat fan nozzles, tips and screens are ideal for broadcast applications. Power sprayers fitted with spray wand/gun may also be used for broadcast application after careful calibration by the applicator. Power sprayers fitted with spray wand/gun are suitable for spot treatments.

Hand operated sprayers: Backpack and compression sprayers are appropriate for small turfgrass areas and spot treatments. Wands fitted with a flat fan nozzle tip should be held stationary at the proper height during application. A side to side or swinging arm motion can result in uneven coverage.

Apply this product in a sufficient volume of carrier solution to provide a uniform spray distribution. Spray volumes of 20 – 175 gallons per acre (0.5 to 4.0 gal/1,000 sq ft) with spray pressures adjusted to 20 – 40 psi are appropriate. Apply the higher spray volumes for dense weed populations.

Sprayer Equipment Clean-Out

After spraying Dismiss turf herbicide and before using sprayer equipment for any other applications, the sprayer must be thoroughly cleaned using the following procedure:

1. Drain sprayer tank, hoses, and spray boom and thoroughly rinse the inside of the sprayer tank with clean water to remove sediment and residues. In addition, thoroughly flush sprayer hoses, boom, and nozzles with clean water.
2. Fill the tank 1/2 full with clean water, and add appropriate detergent or ammonia (follow manufacturer's directions for use). Fill the tank to capacity and operate the sprayer for 15 minutes to flush hoses, boom, and nozzles.
3. Drain the sprayer system. Rinse the tank with clean water and flush through the hoses, boom, and nozzles. Remove and clean spray tips and screens separately.
4. Properly dispose of all cleaning solution and rinsate in accordance with Federal, State and local regulations and guidelines.

Do not drain or flush equipment on or near desirable trees or plants. Do not contaminate any body of water including irrigation water that may be used on other plants.

Weed Control in Turfgrasses

Use Precautions for Turf Use

Turfgrass Safety

This product may be used on seeded, sodded or sprigged turfgrasses that are well established. First application of this product can be made following the second mowing providing the turfgrass has developed into a uniform stand with a good root system. Turfgrass injury could result from application of this product on turfgrass that is not well established

or has been weakened by stresses such as unfavorable weather conditions, disease, chemical or mechanical influences.

When applied as directed under the conditions described, the following established turfgrasses are tolerant to Dismiss turf herbicide at the recommended use rates in a range from 0.125 to 0.375 lb a.i./acre (4 to 12 fl. oz/acre or 0.092 to 0.275 fl. oz./1,000 sq. ft).

Table 1. Tolerant grasses.

Grass Type*	Maximum Use Rate Single Application		
	lb a.i./A	Fluid ounces per 1000 ft ²	Fluid ounces per acre
Cool Season Grasses			
Bentgrass, creeping (<i>Agrostis sp.</i>)	0.125	0.092	4
Bluegrass, Kentucky (<i>Poa pratensis</i>) Bluegrass, Rough ¹ (<i>Poa trivialis</i>) Fescue, fine ¹ (<i>Festuca rubra</i>) Fescue, tall ¹ (<i>Festuca arundinacea</i>) Ryegrass, perennial (<i>Lolium perenne</i>)	0.125 - .25	0.092 - 0.18	4-8
Warm Season Grasses			
Bahiagrass ² (<i>Paspalum notatum</i>) Bermudagrass (<i>Cynodon dactylon</i>) & hybrids Buffalograss (<i>Buchloe dactyloides</i>) Carpentergrass (<i>Axonopus affinis</i>) Centipedegrass (<i>Eremochloa ophiuroides</i>) Kikuyograss (<i>Pennisetum clandestinum</i>) Seashore Paspalum (<i>Paspalum vaginatum</i>) St. Augustinegrass (<i>Stenotaphrum secundatum</i>) ² Zoysiagrass (<i>Zoysia japonica</i>) ²	0.25 - 0.375	0.18 - 0.275	8 - 12

¹Use of this product on certain cultivars of Chewings Fescue, Fine Fescue or Tall Fescue cultivars may result in undesirable injury.

²Dismiss Turf Herbicide application may cause temporary discoloration to exposed leaf surfaces on St. Augustinegrass and certain cultivars of zoysiagrass bahiagrass, or rough bluegrass. Treated turfgrass will recover with new growth. Discolored leaf tissue will be removed with mowing. To reduce potential for discoloration, do not apply Dismiss Turf Herbicide on turfgrass that is weakened by weather, mechanical, chemical, disease or other related stress. Maintain proper cultural practices such as adequate moisture and fertility levels to promote healthy turf growth.

*Dismiss Turf Herbicide has demonstrated tolerance on both cool and warm season turfgrasses. However, not all varieties have been evaluated. Turfgrass managers desiring to treat newly released varieties should first apply Dismiss Turf Herbicide to a small area prior to treatment of larger areas.

Application to reseeded, overseeded or sprigged areas:

Reseeding, overseeding or sprigging of treated areas within one (1) month after application of this product could inhibit the establishment of desirable turfgrasses. Overseeding of bermudagrass with perennial ryegrass at two (2) to four (4) weeks after an application can be done if slight injury to perennial ryegrass can be tolerated.

Best results are obtained for reseeded or overseeding when mechanical or power seeding equipment (slit seeders) are used to give good seed to soil contact and proper soil cultivation, irrigation and fertilization practices are followed.

Sod Production:

This product may be applied to established sod. Allow sod to establish a good root system, a uniform stand and to fill in the exposed edges. It is recommended that sod be established for at least three (3) months before an application of Dismiss turf herbicide.

Do not apply this product within three (3) months of harvest.

Other Use Precautions:

Do not apply to golf course putting greens or tees.
Do not use on turfgrasses other than those listed on this label.
Do not apply with surfactants unless previous experience has demonstrated combinations with surfactant to be physically compatible and non-injurious to the grass type in question.

Do not graze or feed livestock forage cut from areas treated with Dismiss turf herbicide.

Do not apply directly to landscape ornamentals or ornamental beds.

Temporary turfgrass discoloration has been observed when Primo has been either tank-mixed or applied within 7 days of a Dismiss Turf Herbicide application. It is recommended that Primo applications be made 7 days prior to, or after Dismiss Turf Herbicide application to reduce risk of turfgrass discoloration.

POSTEMERGENCE CONTROL OF ANNUAL AND PERENNIAL SEDGES INCLUDING NUTSEDGES

Dismiss turf herbicide will control or suppress sedges (Table 2) when applied at a rate of 4 to 12 fl oz/acre (0.092 to 0.275 fl. oz./1,000 sq. ft.). Apply the highest rate consistent with the rate needed for turfgrass safety in Table 1. Rates lower than 12 fl oz/acre (0.275 fl. oz./1,000 sq. ft.) will generally control sedges for at least 60 days.

Good spray coverage is needed for optimum control of sedges. Temporary discoloration of some turfgrass species may result from use of surfactant. Use of surfactants is not recommended.

Table 2. Sedge species controlled or suppressed by Dismiss turf herbicide

Common Name	SCIENTIFIC NAMES
Kyllinga, green	(<i>Kyllinga brevifolia</i>)
Kyllinga, false green	(<i>Kyllinga gracillima</i>)
Nutsedge, purple ¹	(<i>Cyperus rotundus</i>)
Nutsedge, yellow	(<i>Cyperus esculentus</i>)
Sedge, cylindrical	(<i>Cyperus retrorsus</i>)
Sedge, globe	(<i>Cyperus globulosus</i>)
Sedge, Surinam	(<i>Cyperus surinamensis</i>)
Sedge, Texas	(<i>Cyperus polystachyos</i>)

¹PURPLE NUTSEDGE; For optimum control of purple nutsedge, split applications are recommended (Table 3). Apply 4-8 ounces per acre as an initial application followed by a second application when evidence of actively growing purple nutsedge is visible. Do not exceed the maximum rate per acre based on turfgrass variety listed in Table 1; Tolerant grasses.

Table 3

Split Application Rate Options		
Grass Type	Option 1 (fluid ounces/acre)	Option 2 (fluid ounces/acre)
Cool Season Grasses excluding Bentgrass (see Table 1)	4 oz followed by 4 oz 35 DAIT	6 oz followed by 2 oz 35 DAIT
Warm Season Grasses (see Table 1)	8 oz followed by 4 oz 35 DAIT	6 oz followed by 6 oz 35 DAIT

DAIT = Days After Initial Treatment

POSTEMERGENCE CONTROL OF GRASSY WEEDS

Dismiss Turf Herbicide will control or suppress specific annual Grasses (Table 4) when applied at a rate of 4 to 12 fl. oz/acre (0.092 to 0.275 fl. oz./1,000 sq. ft.). Apply the highest rate consistent with the rate needed for turfgrass tolerance in Table 1. Rates lower than 12 fl. oz/acre (0.275 fl. oz./1,000 sq. ft.) will generally control grasses for at least 60 days. Dismiss Turf Herbicide works best if applied when the annual grasses are small (pre tiller stage) and actively growing.

Good spray coverage is needed for optimum control of grasses. Temporary discoloration of some turfgrass species may result from use of surfactant. Use of surfactants is not recommended.

Table 4

Common Name	Scientific Name
Goosegrass	<i>Eleusine indica</i>

POSTEMERGENCE CONTROL OF ANNUAL, BIENNIAL & PERENNIAL BROADLEAF WEEDS

Dismiss turf herbicide will control or suppress the weeds listed in Table 3 when applied alone shortly after weeds have emerged. Apply Dismiss turf herbicide at rates from 4 to 12 fl. oz/acre (0.092 to 0.275 fl. oz./1,000 sq. ft.). Do not exceed the application rate specified for the turfgrass species in Table 1. To broaden the weed spectrum and increase effectiveness for certain weeds listed in Table 5, Dismiss turf herbicide may be tank mixed with other EPA registered postemergence herbicides. Read the label recommendations of the tank mix partner to determine turfgrass species safety, use rate and application procedures. Follow all label restrictions, use directions and precautionary statements before using these tank mixtures. Read and follow the "TANK MIXTURES COMPATIBILITY" section of this label for instructions on how to determine the compatibility of tank mixtures.

When used as directed Dismiss turf herbicide will control or suppress the following weeds.

Table 5. Weeds controlled or suppressed by Dismiss turf herbicide

BROADLEAVES	SCIENTIFIC NAMES
Bedstraw, catchweed	(<i>Galium aparine</i>)
Beggarweed, Florida	(<i>Desmodium tortuosum</i>)
Bittercress	(<i>Cardamine spp.</i>)
Black medic	(<i>Medicago lupulina</i>)
Buttercups	(<i>Ranunculus spp.</i>)
Carolina geranium	(<i>Geranium carolinianum</i>)
Carpetweed	(<i>Mollugo verticillata</i>)
Chickweed, common	(<i>Stellaria media</i>)
Chickweed, mouseear	(<i>Cerastium vulgatum</i>)
Cinquefoil	(<i>Potentilla spp.</i>)
Clover	(<i>Trifolium spp.</i>)
Copperleaf	(<i>Ascalypha spp.</i>)
Cudweed	(<i>Gnaphalium spp.</i>)
Dandelion	(<i>Taraxacum officinale</i>)
Dock, Curly	(<i>Rumex crispus</i>)
Dollarweed	(<i>Hydrocotyl umbellata</i>)
Eclipta	(<i>Eclipta prostrata</i>)
Evening primrose	(<i>Oenothera biennis</i>)
Fiddleneck	(<i>Amsinckia spp.</i>)
Filaree	(<i>Erodium spp.</i>)
Galinsoga	(<i>Galinsoga ciliata</i>)
Goldenrod	(<i>Solidago spp.</i>)

Table 5. (Continued)

BROADLEAVES	SCIENTIFIC NAMES
Ground ivy	(<i>Glechema hederacea</i>)
Groundsel, common	(<i>Senecio vulgaris</i>)
Henbit	(<i>Lamium amplexicaule</i>)
Knawel	(<i>Scleranthus annuus</i>)
Knotweed, prostrate	(<i>Polygonum aviculare</i>)
Kochia	(<i>Kochia scoparia</i>)
Lambsquarters, common	(<i>Chenopodium album</i>)
Lawn burweed (spurweed)	(<i>Soliva pterosperma</i>)
Lespedeza, common	(<i>Lespedeza striata</i>)
Mallow, common	(<i>Malva neglecta</i>)
Parsley piert	(<i>Aichemilla arvensis</i>)
Pigweed, Redroot	(<i>Amaranthus retroflexus</i>)
Pigweed, Smooth	(<i>Amaranthus hybridus</i>)
Pigweed, Tumble	(<i>Amaranthus albus</i>)
Pineapple weed	(<i>Matricaria matricarioides</i>)
Plantain, buckhorn	(<i>Plantago lanceolata</i>)
Puncture weed	(<i>Tribulus terrestris</i>)
Purslane, common	(<i>Portulaca oleracea</i>)
Pusley, Florida	(<i>Richardia scabra</i>)
Redweed	(<i>Melochia corchorifolia</i>)
Rocket, London	(<i>Sisymbrium irio</i>)
Shepherd's purse	(<i>Capsella bursa-pastoris</i>)
Smartweed, Pennsylvania	(<i>Polygonum pensylvanicum</i>)
Sorrel, Red	(<i>Rumex acetosella</i>)
Speedwell	(<i>Veronica spp.</i>)
Spurge, (annuals)	(<i>Euphorbia spp.</i>)
Spurge, prostrate	(<i>Euphorbia humistrata</i>)
Spurge, spotted	(<i>Euphorbia maculata</i>)
Star of Bethlehem	(<i>Ornithogalum umbellatum</i>)
Velvetleaf	(<i>Abutilon theophrasti</i>)
Violet, wild	(<i>Viola pratensis</i>)
Violet, Johnny-jump-up	(<i>Viola rafeinesquii</i>)
Wild garlic	(<i>Allium vineale</i>)
Wild onion	(<i>Allium canadense</i>)
Woodsorrel, creeping	(<i>Oxalis corniculata</i>)
Woodsorrel, yellow	(<i>Oxalis stricta</i>)

Conditions of Sale and Limitation of Warranty and Liability:

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

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions beyond the control of FMC or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold FMC and Seller harmless for any claims relating to such factors.

Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the Directions for Use when used in accordance with the directions under normal conditions of use. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, FMC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, NOR ANY OTHER EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE SELECTION, PURCHASE, OR USE OF THIS PRODUCT. Any warranties, express or implied, having been made are inapplicable if this product has been used contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to (or beyond the control of) seller or FMC, and buyer assumes the risk of any such use.

To the extent consistent with applicable law, FMC or seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF FMC 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 FMC OR SELLER, THE REPLACEMENT OF THE PRODUCT.

This Conditions of Sale and Limitation of Warranty and Liability may not be amended by any oral or written agreement.

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- For Professionals
 For Homeowners

This publication is meant for homeowners. For sedge control for turf professionals, see Turfgrass Management: Sedge Control for Turf Professionals (Purdue Extension publication AY-338-W), available from the Education Store, www.the-education-store.com.

Purdue Turfgrass Science
www.agry.purdue.edu/turf

All photos by Aaron Patton
except Figure 2 by Corey Gerber,
Purdue Extension.

Yellow Nutsedge Control

Aaron Patton and Dan Weisenberger
Purdue Agronomy — Turfgrass Science

EXPERT
REVIEWED

Yellow nutsedge (*Cyperus esculentus*) is a troublesome, difficult-to-control weed that is often found in turf areas (Figure 1). It is also called chufa, nutgrass, or watergrass.

It is important to remember that yellow nutsedge is not a grass or broadleaf weed, but a sedge. Understanding this plant's biology makes it easier to know how to best control it. This publication describes the life cycle and identification of yellow nutsedge and recommends cultural and chemical management options for homeowners.

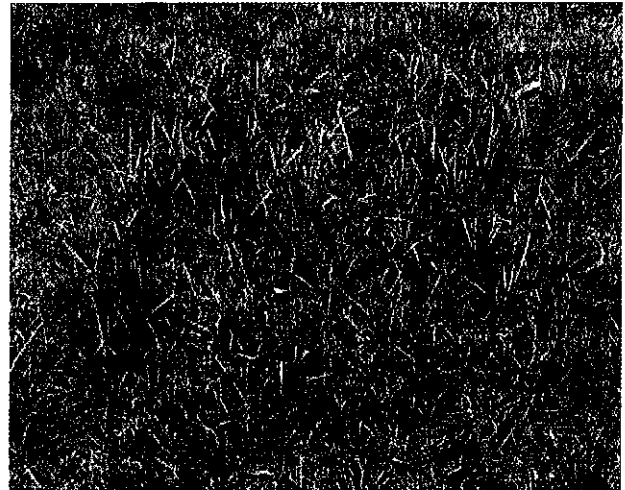


Figure 1. Yellow nutsedge is a problematic turf weed that is difficult to control.

Life Cycle and Identification

Yellow nutsedge is a perennial plant that reproduces primarily by small underground tubers — called nutlets — that form at the end of underground stems — called rhizomes (Figure 2). A single plant can produce several hundred of these tubers during the summer. Yellow nutsedge can also spread by rhizomes (Figure 3). Yellow nutsedge produces a seedhead when unmown, but its seeds rarely germinate.

Yellow nutsedge actively grows during the heat of summer when cool-season turf grows more slowly. Yellow nutsedge typically emerges (germinates from tubers) in Indiana in late April or May (a few weeks after crabgrass germinates) and grows actively until the first frost in autumn. A frost will kill the plant's aboveground portion but the tubers will survive and overwinter in the soil. Dormant tubers can germinate and emerge throughout the following season or survive in the soil for more than three years.

Yellow nutsedge is most noticeable in summer because its leaves grow more rapidly than the turf during the hottest summer months (Figure 4). During spring and fall (when it is cooler) nutsedge growth is slower and not as easy to spot in turf.

Yellow nutsedge can be identified by the triangular shape of its stem. You can feel the shape by rolling the stem in your fingertips.

Yellow nutsedge leaves are arranged in groups of three (three-ranked), which also distinguishes it from grasses (Figure 5). The leaves are light green to yellowish, and each leaf has a long, tapered tip. Each leaf also has a prominent midrib, and has a slick, shiny, or waxy appearance.

While many grasses (such as crabgrass) have hairs on the leaf blades, yellow nutsedge does not. Yellow nutsedge will produce a golden seedhead, although the seedhead seldom forms in frequently mown turf.

Site History and Cultural Control Methods

Yellow nutsedge is a problem in many agricultural fields, and (as can be expected by its reproductive methods) in lawns that have been converted from farmland. It also is a troublesome weed in horticultural and nursery crop production. Yellow nutsedge tubers can easily be spread by soil (topsoil or fill dirt) from one area to another during construction. Additionally, people and equipment can spread yellow nutsedge any time they move soil while planting or dividing ornamental plants in the landscape.

The best method for controlling yellow nutsedge (and other weeds) is to grow a healthy, dense, vigorous stand of turf that can compete with weeds. Encourage dense turf stands by following proper turf maintenance practices, including fall fertilization, proper irrigation, frequent mowing at the proper height, and over-seeding as needed.

Yellow nutsedge is most problematic in turf that is mown too short, and it thrives in areas where soils remain moist from poor drainage or over-watering. However, yellow nutsedge can also be a problem in well-drained areas, especially thin turf.



Figure 2. This image shows a mature yellow nutsedge tuber (the brown structure on top) and a yellow nutsedge tuber forming on the tip of a rhizome.



Figure 3. This yellow nutsedge plant is spreading both by a rhizome (left) and a tuber (the swollen rhizome tip at the bottom of the photo).



Figure 4. Yellow nutsedge grows taller than the surrounding turf during the summer.

Material Safety Data Sheet
Dismiss® CA Herbicide

SDS #: 1466-5-A
Revision Date: 2012-01-24
Version 1.01



This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard 29 CFR 1910.1200
and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	Dismiss® CA Herbicide
Formula code	1466-A
Active Ingredient(s)	Sulfentrazone.
Alternate Commercial Name	Authority™ 4 F; Boral™ 480 SC; Spartan™ 4F
Synonyms	FMC 97285; 2',4'-dichloro-5'-(4-difluoromethyl-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl) methanesulfonanilide; N-[2,4-dichloro-5-[4-(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]phenyl] methanesulfonamide
Chemical Family	Triazolinones
Recommended use	Herbicide
Manufacturer	Emergency telephone number
FMC Corporation Agricultural Products Group 1735 Market Street Philadelphia, PA 19103 General Information: Phone: (215) 299-6000 E-Mail: msdsinfo@fmc.com	For leak, fire, spill or accident emergencies, call: +1 800.424.9300 (CHEMTREC - U.S.A.) +1 703.527.3887 (CHEMTREC - Collect - All Other Countries) Medical Emergencies: (800) 331-3148 (U.S.A. & Canada) +1 (651) 632-6793 (All Other Countries - Collect)

2. Hazards identification

Appearance	off-white liquid
Physical state	liquid
Odor	Faint Alcohol
Potential health effects	
Principle Routes of Exposure	Eye contact, Skin contact, Inhalation, Ingestion.
Acute effects	
Eyes	May cause slight irritation.
Skin	Substance may cause slight skin irritation.
Inhalation	May cause irritation of respiratory tract. May cause drowsiness and dizziness.
Ingestion	May cause central nervous system depression. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Chronic effects	Effects are expected to be similar to those that are seen with acute toxicity. Contains toluene. Exposure to toluene in animals via inhalation and intentional overexposure to toluene in humans has caused adverse fetal development effects.

3. Composition/information on ingredients**Hazardous ingredients**

Chemical Name	CAS-No	Weight %
Sulfentrazone	122836-35-5	40
Propylene glycol	57-55-6	5-10
Oxirane, methyl-, polymer with oxirane, monobutyl ester	9038-95-3	1-5
Toluene	108-88-3	<3

4. First aid measures

Eye contact	Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.
Skin contact	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Inhalation	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.
Ingestion	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not induce vomiting or give anything by mouth to an unconscious person.

5. Fire-fighting measures

Flash Point	> 94 °C / > 201 °F
Method	Tag Closed Cup
Sensitivity to Mechanical Impact	not applicable
Sensitivity to Static Discharge	not applicable
Suitable extinguishing media	Carbon dioxide (CO ₂), Foam. Dry powder. Water spray.
Protective equipment and precautions for firefighters	Wear self-contained breathing apparatus and protective suit.

NEPA

Health Hazard	1
Flammability	1
Stability	0
Special Hazards	-

6. Accidental release measures

Personal precautions	Isolate and post spill area. Remove all sources of ignition. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.
Environmental precautions	Keep people and animals away from and upwind of spill/leak. Keep material out of lakes, streams, ponds, and sewer drains.
Methods for containment	Dike to prevent runoff. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up Clean and neutralize spill area, tools and equipment by washing with bleach water and soap. Absorb rinsate and add to the collected waste. Waste must be classified and labeled prior to recycling or disposal. Dispose of waste as indicated in Section 13.

Other For further clean-up instructions call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.

7. Handling and storage

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

Storage Keep in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep out of reach of children and animals. Store in original container.

8. Exposure controls/personal protection

Exposure guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Toluene 108-88-3	TWA: 20 ppm	TWA: 200 ppm Ceiling: 300 ppm	IDLH: 500 ppm TWA: 100 ppm TWA: 375 mg/m ³ STEL: 150 ppm STEL: 560 mg/m ³	Mexico: S* Mexico: TWA 50 ppm Mexico: TWA 188 mg/m ³

Chemical Name	British Columbia	Quebec	Ontario TWAEV	Alberta
Propylene glycol 57-55-6			TWA: 10 mg/m ³ TWA: 50 ppm TWA: 155 mg/m ³	
Toluene 108-88-3	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m ³ Skin	TWA: 20 ppm	TWA: 50 ppm TWA: 188 mg/m ³ Skin

Occupational exposure controls

Engineering measures Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Personal Protective Equipment

General Information If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied.

Respiratory protection For dust, splash, mist or spray exposures wear a filtering mask.

Eye/face protection For dust, splash, mist or spray exposure, wear chemical protective goggles or a face-shield.

Skin and body protection Wear long-sleeved shirt, long pants, socks, shoes, and gloves.

Hand protection Protective gloves

Hygiene measures Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking, chewing gum or using tobacco. Shower or bathe at the end of working. Remove and wash contaminated clothing before re-use. Launder work clothing separately from regular household laundry.

9. Physical and chemical properties

Appearance	off-white liquid
Color	off-white
Physical state	liquid
Odor	Faint Alcohol
pH	5.3-6.0 @ 20°C
Melting Point/Range	No information available.
Freezing point	No information available
Boiling Point/Range	not applicable
Flash Point	> 94 °C / > 201 °F Tag Closed Cup
Evaporation rate	not applicable
Autoignition Temperature	not applicable
Vapor pressure	No information available
Vapor density	No information available
Specific Gravity	1.206 @ 20 °C (water = 1)
Water solubility	Dispersible in water
Percent volatile	No information available
Partition coefficient:	not applicable
Viscosity	No information available
Oxidizing properties	not applicable

10. Stability and reactivity

Stability	Stable.
Conditions to avoid	Excessive heat
Hazardous decomposition products	Carbon oxides, nitrogen oxides (NOx), Sulfur oxides, Hydrogen chloride, Hydrogen fluoride.
Hazardous polymerization	Hazardous polymerization does not occur

11. Toxicological information**Acute Toxicity**

Signs of toxicity in laboratory animals, with sulfentrazone, included clonic convulsions, ataxia, hypersensitivity to touch, chromorhinorrhea, abnormogenital staining, decreased locomotion, lacrimation, nasal discharge, and squinting eyes.

Eye contact	Slightly or non-irritating (rabbit)
Skin contact	Slightly or non-irritating (rabbit)

LD50 Dermal	> 2000 mg/kg (rabbit)
LD50 Oral	2084 mg/kg (rat)
LC50 Inhalation:	> 2.72 mg/L 4 hr (rat) - Maximum attainable concentration (zero mortality)

Chronic Toxicity - Other Ingredient(s)

Chronic Toxicity	Effects are expected to be similar to those that are seen with acute toxicity Contains toluene. Exposure to toluene in animals via inhalation and intentional overexposure to toluene in humans has caused adverse fetal development effects
Carcinogenicity	Sulfentrazone: Did not show carcinogenic effects in animal experiments.
Mutagenicity	Sulfentrazone: Did not show mutagenic effects in animal experiments.
Reproductive toxicity	Offspring Toxicity (sulfentrazone): LOAEL = 33 mg/kg/day for males; 40 mg/kg/day for females.

Neurological Effects Sulfentrazone: Altered motor activity and FOB effects, which reverse after single exposure, with no signs of histopathology

Developmental Toxicity Sulfentrazone: NOAEL of 10 mg/kg/day in the developmental toxicity study in rat. NOAEL of 14 mg/kg/day in a 2-generation reproduction study. Contains ingredients that have suspected developmental hazards. Inhalation of toluene vapors at high doses have resulted in an increased incidence of malformations and decreased fetal weight in laboratory animals

Target Organ Effects Sulfentrazone: Hematopoietic System.

Chemical Name	ACGIH	IARC	NTP	OSHA	NIOSH - Target Organs
Toluene					CNS,eyes,kidneys,liver,respiratory system,skin

12. Ecological information

Ecotoxicity

Ecotoxicity effects Very toxic to aquatic organisms.

Sulfentrazone (122836-35-5)

Active Ingredient(s)	Duration	Species	Value	Units
Sulfentrazone	120 h LC50	Algae	31	µg/L
	48 h LC50	Aquatic organisms	60.4	mg/L
	96 h LC50	Fish	94	mg/L
	LD50 Oral	Bobwhite quail	>2250	mg/kg
	LD50 Dietary	Mallard duck	>5620	ppm

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Propylene glycol	19000 mg/L EC50 96 h (Pseudokirchneriella subcapitata)	LC50 51600 mg/L Oncorhynchus mykiss 96 h LC50 41 - 47 mL/L Oncorhynchus mykiss 96 h LC50 51400 mg/L Pimephales promelas 96 h LC50 710 mg/L Pimephales promelas 96 h		EC50 >>10000 mg/L 24 h EC50 >>1000 mg/L 48 h
Toluene	>433 mg/L EC50 96 h (Pseudokirchneriella subcapitata) 12.5 mg/L EC50 72 h (Pseudokirchneriella subcapitata)	LC50 15.22-19.05 mg/L Pimephales promelas 96 h LC50 12.6 mg/L Pimephales promelas 96 h LC50 5.89-7.81 mg/L Oncorhynchus mykiss 96 h LC50 14.1-17.16 mg/L Oncorhynchus mykiss 96 h LC50 5.8 mg/L Oncorhynchus mykiss 96 h LC50 11.0-15.0 mg/L Lepomis macrochirus 96 h LC50 54 mg/L Oryzias latipes 96 h LC50 28.2 mg/L Poecilia reticulata 96 h LC50 50.87-70.34 mg/L Poecilia reticulata 96 h		EC50 5.46 - 9.83 mg/L 48 h EC50 11.5 mg/L 48 h

Environmental Fate

Sulfentrazone (122836-35-5)

Active Ingredient(s)	Type of Test	Result
Sulfentrazone	Bioconcentration factor (BCF)	2
	Half-life in soil	2-18 months
	log Pow	1.5
	Mobility in soil	Potential to reach groundwater
	Stability in water	Stable to hydrolysis over a wide range of pH values.

Chemical Name	log Pow
Toluene	2.65

13. Disposal considerations

Waste disposal methods Improper disposal of excess pesticide, spray mixture, or rinsate is prohibited. If these wastes cannot be disposed of by use according to label instructions, contact appropriate disposal authorities for guidance.

Contaminated packaging Containers must be disposed of in accordance with local, state and federal regulations. Refer to the product label for container disposal instructions.

14. Transport information

DOT This material is not a hazardous material as defined by U.S. Department of Transportation at 49 CFR Parts 100 through 185.

Packaging Type Non-Bulk, Bulk

TDG Classification below is only applicable when shipped by vessel and is not applicable when shipped by road or rail only.

Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
Hazard Class 9
UN/ID No UN3082
Packing group III
Marine pollutant Sulfentrazone.
Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (sulfentrazone), 9, PGIII, Marine pollutant

ICAO/IATA

UN/ID No UN3082
Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
Hazard Class 9
Packing group III
Marine pollutant Sulfentrazone
Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (sulfentrazone), 9, PGIII, Marine pollutant

IMDG/IMO

Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
Hazard Class 9
UN/ID No UN3082
Packing group III
EmS No. F-A, S-F
Marine pollutant Sulfentrazone
Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (sulfentrazone), 9, PGIII, Marine pollutant

15. Regulatory information**U.S. Federal Regulations****SARA 313**

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

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Toluene	108-88-3	<3	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	yes
Chronic Health Hazard	yes
Fire Hazard	no
Sudden Release of Pressure Hazard	no
Reactive Hazard	no

CERCLA

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Toluene	1000 lb	

TSCA Inventory (United States of America)

Chemical Name	U.S. - TSCA (Toxic Substances Control Act) - Section 8(d) - 716.120(a) - Health and Safety Reporting - List of Substances
Toluene	10/04/1982

International Regulations**Mexico - Grade**

Slight risk, Grade 1

Chemical Name	Carcinogen Status	Mexico
Toluene		Mexico: S* Mexico: TWA 50 ppm Mexico: TWA 188 mg/m ³

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

D2A Very toxic materials

**16. Other information**

Revision Date: 2012-01-24
Reason for revision: (M)SDS sections updated.

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End of Material Safety Data Sheet