

279-3295

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

AUG 24 2011

Shannon Yanocha
FMC Corporation
1735 Market Street
Philadelphia, PA 19103

Dear Ms. Yanocha:

SUBJECT: Label Amendment
Sulfentrazone 4F Row Herbicide
EPA Registration No. 279-3295

The label amendment referred to above, submitted in accordance with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable. A stamped copy is enclosed for your records. Please submit (1) copy of your final printed labeling before you release the product for shipment. This amended label supersedes all previously accepted ones.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Kathryn V. Montague".

Kathryn V. Montague
Product Manager (23)
Herbicide Branch
Registration Division (7505P)

Enclosure

Sulfentrazone 4F ROW Herbicide

For Use in Railroad, Highway, Roadside, Pipeline and Utility Rights-of-Way, Industrial Areas, Fence Rows, and Other Non-crop Sites. Can Also Be Used For Selective Weed Control in Turf Sites Including Residential and Institutional Lawns, Athletic Fields, Commercial Sod Farms, Golf Course Fairways and Roughs. Also for use as Selective Weed Control in Container and Field grown ornamentals

EPA Reg. No 279-3295

EPA Est. 279-

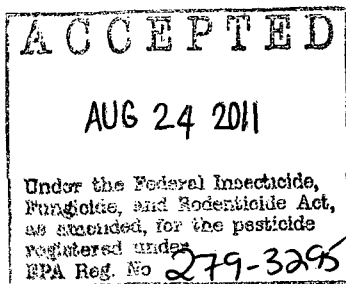
Active Ingredient:	By Wt.
Sulfentrazone*	39.6%
Other Ingredients:	60.4%
	100.0%

*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.

**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

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 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

Metal or Plastic Containers - Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: (For containers greater than 5

gallons) Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. (For containers 5 gallons or less) Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Then offer for recycling if available, or reconditioning, 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.

Returnable/Refillable Containers - Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

PRODUCT INFORMATION

Sulfentrazone 4F ROW is a selective soil applied herbicide for the control of certain broadleaf weeds, grasses and sedges. When applied according to directions, it will provide control of susceptible species. Sulfentrazone 4F ROW is formulated as flowable (suspension concentrate) containing four pounds of the active ingredient sulfentrazone per gallon.

The mode of action of Sulfentrazone 4F ROW involves uptake by weed roots and shoots. Observe all instructions, mixing directions, application precautions and other label information of each product when tank mixing with Sulfentrazone 4F ROW.

Proper 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.

APPLICATION INFORMATION

Utilize a boomless application system or a boom and nozzle sprayer equipped with the appropriate nozzles, spray tips and screens and adjusted to provide optimum spray distribution and coverage at the appropriate operating pressures. Utilize nozzles and boomless sprayer configurations which produce minimal amounts of fine spray droplets. Do not exceed 25 psi spray pressure unless otherwise required by the manufacturer of drift reducing nozzles or boomless application systems. Apply a minimum of 10 gallons of finished spray per acre.

Water must be used as the carrier for this product when applied alone, or when tank mixed with other herbicides.

Avoid letting this product sit overnight as settling of product and difficulty of resuspending may occur.

Do not allow spray to drift onto adjacent plants and injury to other plants may occur.

Do not apply to ornamental shrubs and trees, turf grasses or crops.

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 Sulfentrazone 4F ROW to the tank.

MIXING INSTRUCTIONS

Sulfentrazone 4F ROW may be tank mixed with other herbicides for control of additional weed species. Mixtures with some other herbicides have not been tested. Conduct an appropriate compatibility test prior to tank mixing with other products. Follow all precautions and restrictions on the tank mix partner label.

For best results, fill spray tank with one half of the volume of clean water needed for the area to be treated. Start agitation system. Slowly add Sulfentrazone 4F ROW to the spray tank. Complete filling the spray tank to the desired level. Continuous spray tank agitation is required at all times to maintain a uniform spray solution. Make sure Sulfentrazone 4F ROW is thoroughly mixed before application or before adding another product to the spray tank.

For tank mixtures with other herbicides, a jar test should be conducted to ensure product compatibility before full-scale mixing. Provided the jar test indicates the mixture to be compatible, prepare the tank mixture as follows: Fill the tank one half full with water. With agitator operating, add the recommended amounts of ingredients using the following order: dry granules first, liquid suspensions (flowables) second. Add EC products followed by water soluble products to tank as agitation continues and tank is filled with water. All applicable directions, restrictions and precautions for the tank mixture herbicides must be followed.

Use the Sulfentrazone 4F ROW mixture immediately after mixing. Do not store the sprayer overnight or for any extended period of time with the Sulfentrazone 4F ROW spray mixture remaining in the tank. Premixing Sulfentrazone 4F ROW spray solutions in nurse tanks is not recommended.

If Sulfentrazone 4F ROW is tank-mixed with other herbicides, all additional directions, restrictions and precautions for the tank mixture herbicides must be followed.

Spray Drift Management

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

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

1. The distance of the outer most nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wingspan or rotor.
2. Nozzles must always point backward and parallel with the air stream and never be pointed downwards more than 45 degrees. Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the [Aerial Drift Reduction Advisory Information](#).

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. 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 Inversion section of this label).

Controlling Droplet Size

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

Pressure: 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 higher flow rate nozzles instead of increasing pressure.

Number of nozzles: Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation: Orienting nozzles so that the spray is released backwards, parallel to the airstream will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

Nozzle Type: Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce larger droplets than other nozzle types.

Boom Height: Making applications at the lowest height that produces a uniform spray pattern will reduce exposure of droplets to evaporation and wind.

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

Application Height (by air): Applications should not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment

When applications are made with a crosswind toward sensitive areas, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.). For ground applications, when applications are made with a crosswind towards sensitive areas, the application should leave a buffer to avoid off-site movement.

Wind

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential

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

Temperature and Humidity

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

Temperature Inversions

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

Sensitive Areas

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

Drift Control Additives

Drift control additives may be used with all spray equipment with the exception of controlled droplet applicators. When a drift control additive is used, read and carefully observe cautionary statements and all other information on the label. It is recommended that additives be certified by the Chemical Producers and Distributors Association (CPDA).

Sprayer Equipment Clean-Out

After spraying Sulfentrazone 4F ROW 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.

APPLICATION INSTRUCTIONS

Railroad Rights-of-Way

Sulfentrazone 4F ROW can be used to control many weeds and maintain bare ground on railroad rights-of-way, including railroad yards, railroad crossings and railroad bridge abutments.

Highway, Roadside, Pipeline and Utility Rights-of-Way.

Sulfentrazone 4F ROW can be used to control many weeds and maintain bare ground in highway, roadside, pipeline and utility rights-of-way. Such areas would include, but are not limited to, guard rails, road shoulders, electric utility substations, pipeline pumping stations, around electric transmission towers, around distribution line poles and in other areas where complete vegetation control is desired.

Industrial Areas, Fence Rows and Other Non-crop Sites

Sulfentrazone 4F ROW controls weeds and maintains bare ground in industrial areas including production facilities, tank farms, storage areas, parking areas, lumber yards, airports, military installations, along fence rows, and in similar non-crop sites where complete vegetation control is needed.

For use as Selective Weed Control in Container and Field Grown Ornamentals.

Method and Rate of Application

For residual control of germinating weeds in non-crop land, apply this product as a broadcast treatment at 8 to 12 fluid ounces (0.25 to 0.375 pounds active ingredient) per acre by ground in a minimum of 10 gallons of spray solution per acre. Applications may be made by helicopter on railroad rights-of-way only.

DO NOT apply Sulfentrazone 4F ROW to soils classified as sand with less than 1% Organic Matter.

Use labeled rates of burndown herbicides such as glyphosate, glyphosate - trimesium, diquat, 2,4-D, dicamba, etc. as tank mixtures with Sulfentrazone 4F ROW. Use recommended adjuvants for the herbicide tank mix partner. For all products used in tank mixes, refer to the specific product labels for all restrictions on tank mixing and observe all label precautions, instructions and rotational cropping restrictions.

Timing

For best results, apply Sulfentrazone 4F ROW Herbicide alone or in combination with other herbicides for residual control of weeds in late summer, fall, or early spring to insure adequate moisture for soil activation.

Weeds Controlled

This product, when applied at 8 to 12 fluid ounces per acre, will control the following weeds in non-cropland areas. Use the higher labeled rates to extend length of control. Use the higher rates on sites with fine soil textures and on sites with more than 2% organic matter.

Weeds Controlled	
Beggarweed, Florida	Desmodium tortuosum
Carpetweed	Mollugo verticillata
Chickweed, common	Stellaria media
Copperleaf, Hophornbeam	Acalypha ostryifolia
Crabgrass species	Digitaria spp.
Croton, tropic	Croton glandulosus
Daisy, American	Coreopsis grandiflora
Dayflower, common	Commelina communis
Dayflower, Virginia	Commelina virginica
Dock, curly	Rumex crispus
Fixweed	Descurainia Sophia
Galinsoga, hairy	Galinsoga ciliata
Groundcherry, clammy (seedling)	Physalis heterophylla
Groundcherry, cutleaf	Physalis angulata
Jimsonweed	Datura stramonium
Kochia	Kochia scoparia
ALS/Triazene Resistant Kochia	Kochia scoparia

Lambsquarter, common	Chenopodium album
Lettuce, wild	Lactuca virosa
Mallow, common	Malva neglecta
Milkweed, honeyvine	Ampelamus albidus
Mexicanweed	Caperonia castanifolia
Morningglory species	Ipomoea spp.
Mustard species	Brassica spp.
Nightshade species	Solanum spp.
Nutsedge species	Cyperus spp.
Palmer amaranth	Amaranthus palmeri
Pigweed, smooth	Amaranthus hybridus
Pigweed, redroot	Amaranthus retroflexus
Texasweed	Caperonia palustris
Thistle, Russian	Salsola iberica
Waterhemp, tall	Amaranthus tuberculatus
Waterhemp, common	Amaranthus rudis

Turf Use Instructions

Product Information

Sulfentrazone 4F ROW is a selective preemergence and post emergence herbicide which controls annual grasses and broadleaf weeds 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. To broaden the spectrum for preemergence control or suppression of annual grasses and/or broadleaf weeds, Sulfentrazone 4F ROW should be tank mixed with an EPA registered annual grass herbicide. Observe all instructions, mixing directions, application precautions and other label information of each product when tank mixing with Sulfentrazone 4F ROW.

Sulfentrazone 4F ROW is formulated as a flowable (suspension concentrate) containing 4 lbs of active ingredient per gallon. The mode of action of Sulfentrazone 4F ROW involves uptake by both weed roots and shoots. Preemergence application of Sulfentrazone 4F ROW requires soil moisture for activation. The amount of soil moisture required for activation following application depends on existing soil moisture, organic matter content and soil texture. The most effective preemergence weed control will be obtained when Sulfentrazone 4F ROW is activated by at least 0.5 inches of rainfall or irrigation within 7 days after application and prior to weed seed germination.

Mixing and Application Instructions

Product 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 Sulfentrazone 4F ROW to the tank.

Sulfentrazone 4F ROW 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 Sulfentrazone 4F ROW to the tank. Make sure Sulfentrazone 4F ROW 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 Sulfentrazone 4F ROW. 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

Sulfentrazone 4F ROW 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 resuspend 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 Sulfentrazone 4F ROW 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 ft²) 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 Sulfentrazone 4F ROW 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 Sulfentrazone 4F ROW at the listed 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 ² (<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>) Kikuyugrass (<i>Pennisetum clandestinum</i>) Seashore Paspalum (<i>Paspalum vaginatum</i>) St. Augustinegrass (<i>Stenotaphrum secundatum</i>) ³ Zoysiagrass (<i>Zoysia japonica</i>) ³	0.25 - 0.375	0.18 - 0.275	8 - 12

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

2. Sulfentrazone 4F ROW 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 Sulfentrazone 4F ROW 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.

*Sulfentrazone 4F ROW 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 Sulfentrazone 4F ROW 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 Sulfentrazone 4F ROW. 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 Sulfentrazone 4F ROW.

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 Sulfentrazone 4F ROW application. It is recommended that Primo applications be made 7 days prior to, or after Sulfentrazone 4F ROW application to reduce risk of turfgrass discoloration.

PREEMERGENCE CONTROL OF ANNUAL GRASSES AND BROADLEAF WEEDS

Control of Summer Annual Weeds:

Apply Sulfentrazone 4F ROW at the application rate for the turf species being managed (4 to 12 fluid ounces/acre or 0.092 to 0.275 fl. oz./1,000 sq. ft.) prior to weed seed germination in early spring. Applications in early spring will control or suppress the following summer annuals:

Black medic	(<i>Medicago lupulina</i>)
Common purslane	(<i>Portulaca oleracea</i>)
Pigweed, Redroot	(<i>Amaranthus retroflexus</i>)
Pigweed, Smooth	(<i>Amaranthus hybridus</i>)
Prostrate knotweed	(<i>Polygonum aviculare</i>)
Spurge	(<i>Euphorbia spp.</i>)
Prostrate spurge	(<i>Euphorbia supina</i>)
Spotted spurge	(<i>Euphorbia maculata</i>)
Barnyardgrass	(<i>Echinochloa crusgalli</i>)
Crabgrass, large	(<i>Digitaria sanguinalis</i>)
Crabgrass, smooth	(<i>Digitaria ischaemum</i>)
Foxtail, green	(<i>Setaria viridis</i>)
Foxtail, yellow	(<i>Setaria glauca</i>)
Goosegrass	(<i>Eleusine indica</i>)

Control of Winter Annual Weeds:

Apply Sulfentrazone 4F ROW at the application rate for the turf species being managed (4 to 12 fluid ounces/acre or 0.092 to 0.275 fl. oz./1,000 sq. ft.) in late summer or early fall to control or suppress the following winter annual weeds:

Buttercups	(<i>Ranunculus spp.</i>)
Carolina geranium	(<i>Geranium carolinianum</i>)
Common chickweed	(<i>Stellaria media</i>)
Common groundsel	(<i>Senecio vulgaris</i>)
Corn Speedwell	(<i>Veronica arvensis</i>)
Hairy bittercress	(<i>Cardamine hirsuta</i>)
Henbit	(<i>Lamium amplexicaule</i>)
Johnnyjumpup violet	(<i>Viola rafeinesquii</i>)
Knawel	(<i>Scleranthus annuus</i>)
Large hop clover	(<i>Trifolium campestre</i>)
Mouseear chickweed	(<i>Cerastium vulgatum</i>)
Parsley-piert	(<i>Alchemilla microcarpa</i>)
Spurweed	(<i>Soliva pterosperma</i>)
Annual bluegrass	(<i>Poa annua</i>)
Annual ryegrass	(<i>Lolium multiflorum</i>)

To broaden the spectrum for preemergence control or suppression of annual grasses and/or broadleaf weeds, Sulfentrazone 4F ROW can be tank mixed with an EPA registered annual grass herbicide. Applications in combination with prodiamine, pendimethalin, dithiopyr or oxadiazon will provide broad spectrum control of the weeds listed in Table 4. Read the label recommendations of the tank mix partner to determine grass 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.

POSTEMERGENCE CONTROL OF ANNUAL, BIENNIAL & PERENNIAL BROADLEAF WEEDS

Sulfentrazone 4F ROW will control or suppress the weeds listed in Table 4 when applied alone shortly after weeds have emerged. Apply Sulfentrazone 4F ROW 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 4, Sulfentrazone 4F ROW may be tank mixed with other EPA registered postemergence

herbicides. Control of emerged annual grass weeds may be improved by combining Sulfentrazone 4F ROW with Acclaim®, Dimension®, MSMA or Drive®. 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 Sulfentrazone 4F ROW will control or suppress the following weeds.

Table 4. Weeds Controlled or Suppressed by Sulfentrazone 4F ROW

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 ciliate</i>)
Goldenrod	(<i>Solidago spp.</i>)
Ground ivy	(<i>Glechoma 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>Alchemilla 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 pennsylvanicum</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 pratincola</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>)

POSTEMERGENCE CONTROL OF ANNUAL AND PERENNIAL SEDGES

Sulfentrazone 4F ROW will control or suppress sedges (Table 5) 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. A rate of 12 fl oz/acre (0.275 fl oz/1,000 sq. ft.) will provide approximately 75% control

for at least 60 days. Yellow nutsedge (*Cyperus esculentus*) is the most susceptible sedge species.

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 5. Sedge species controlled or suppressed by Sulfentrazone 4F ROW

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

1. PURPLE NUTSEDGE; For optimum control of purple nutsedge, split applications are recommended (Table 6). 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 6

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

Sulfentrazone 4F ROW will control or suppress specific annual grasses (Table 7) 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. Sulfentrazone 4F ROW 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 7

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

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