



# SULF 396 XL

## Turfgrasses and Non-Crop Uses

For use in railroad, highway, roadside, pipeline and utility rights of way, industrial areas, fence rows, and other listed non-crop sites.

### ACTIVE INGREDIENTS

Sulfentrazone\*.....39.6%

**OTHER INGREDIENTS:** .....60.4%

**TOTAL:** .....100.00%

\*Equivalent to 4 pounds of active ingredient per gallon

EPA Reg. No: 91234-32-86064

EPA Est. No: 39578-TX-001<sup>M</sup>;

072344-O-004<sup>T</sup>

First letter(s) of lot number correspond to letter(s) following the EPA Est. No.

## KEEP OUT OF REACH OF CHILDREN CAUTION—PRECAUCIÓN

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

See label booklet for additional precautionary statements.

For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident  
Call CHEMTREC Day or Night

1 (800) 424-9300, or +1 (703) 527-3887  
(collect calls accepted)

Manufactured for:

United Turf Alliance, LLC

8014 Cumming Highway, Suite 403-282  
Canton, GA 30115



**SKU: 450321**

## FIRST AID

<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"><li>• Move person to fresh air.</li><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li><li>• Call a poison control center or doctor for further treatment advice.</li></ul>
<b>IF IN EYES:</b>	<ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li><li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>

### **HOTLINE NUMBER**

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For emergency medical information concerning this product, call the poison control center at 1 (800) 222-1222.

### **PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS CAUTION/PRECAUCIÓN**

Harmful if swallowed. Harmful if absorbed through skin or inhaled. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist.

#### **Personal Protective Equipment (PPE)**

##### **Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product. Do not re-use them.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### **USER SAFETY RECOMMENDATIONS**

#### **Users should:**

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

## **PHYSICAL OR CHEMICAL HAZARDS**

Do not use or store near heat or open flame.

## **DIRECTIONS FOR USE**

Not for Residential Use.

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

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.

Applicators must not exceed labeled rates of this product. Refer to specific crop directions for use for maximum use rates. Calculate the 12 month period for the purpose of maximum use rates from when SULF 396 XL is first applied. 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 SULF 396 XL 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.

Personal Protective Equipment (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
- 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.

Reentry Statement: Do not allow people (other than applicator) or pets on treatment area during application. Do not enter treatment area until sprays have dried.

### **WEED RESISTANCE MANAGEMENT**

SULF 396 XL must be applied at the labeled rates and in accordance with label directions. Do not apply SULF 396 XL at rates less than those listed in this label. Observe target areas prior to treatment and apply SULF 396 XL when weeds are smaller.

Scouting the application area before applying this product to identify weeds and their growth stages, and again following application of this product will help to identify performance issues or likely weed resistance.

If levels of control provided by applications of this product is reduced, and cannot be accounted for by factors such as misapplication, abnormal levels of target species or extremes of weather, it may be the case that target species have developed a strain resistant to applications of SULF 396 XL. If resistance develops, SULF 396 XL may not provide sufficient control of target species. Where you suspect target species are developing resistance, contact State/local agricultural advisors.

Certain species may develop resistance to this product/other herbicides where they are used repeatedly. Application of pesticide products therefore should be carried out in consultation with local/State agricultural advisors so that local resistance management strategies can be implemented.

In order to limit the possibility of resistance developing, apply SULF 396 XL in rotation with products that have a different mode of action and other classes of chemistry.

## **PRODUCT INFORMATION**

SULF 396 XL is a soil-applied selective herbicide. It will control listed grasses, sedges and broadleaf weeds. SULF 396 XL is a flowable product that contains 4 pounds of active ingredient (sulfentrazone) per gallon.

The active ingredient sulfentrazone inhibits an enzyme required by plants in order to produce chlorophyll. Inhibiting this enzyme leads to the release of singlet oxygen (O) which then disrupts cellular membranes, resulting in cellular leakage and cellular death ultimately resulting in plant death.

SULF 396 XL has a selective mode of action because sulfentrazone has a greater affinity for the PRO IX enzyme in listed weed species as opposed to listed crops.

SULF 396 XL must be prepared and used in such a way so as to prevent the following:

- spills
- improper disposal of spray mixtures, rinsate or any excess pesticide
- back siphoning in wells

### **Setback**

The following activities must not be carried out within 50 feet of any well (including drainage and abandoned wells) unless the activity is carried out on an impervious pad that has been built to withstand the heaviest possible weight that will be moved across the pad or placed upon it:

- Loading
- Mixing
- Washing/rinsing SULF 396 XL from application equipment

The impervious pad must be made to contain any leaks or spills, as well as any rinsate/washwaters and rain that may fall upon it. An impervious pad that does not have a roof must have enough capacity to contain a minimum of 110% of the volume of the largest container that will be placed on the pad. Those pads that are covered by a roof must have enough capacity to contain a minimum of 100% of the volume of the largest container that will be placed on the pad. The roof must be big enough to completely exclude contact with the pad from rainfall.

The above containment volume minimum must be maintained. The minimum capacity volumes do not apply to the following:

- Vehicles delivering pesticide product to the load/mix area

Applicators must ensure that they are aware of any State requirements for containment and set back from wells.

The impervious pad must be self-contained so that surface water cannot flow over or from one pad. They must also be sloped to allow for material removal.

Do not load or mix SULF 396 XL within 50 feet of any sinkholes, reservoirs, impounded or natural lakes, wells (including drainage and abandoned wells) or intermittent/perennial rivers and streams. This restriction does not apply where there are properly diked loading/mixing areas or impervious pads. The restriction also does not apply where abandoned wells are properly plugged or capped

### **APPLICATION INSTRUCTIONS**

Apply SULF 396 XL as a broadcast treatment at rates indicated, in enough water to obtain good coverage and to make at least 10 gallons finished spray per acre.

When SULF 396 XL is tank mixed or applied alone, use water, as the carrier.

In order to assure appropriate amounts of moisture for activation of product, best results will be obtained if SULF 396 XL is applied in early spring, late summer or fall.

Make application with a boom and nozzle sprayer or boomless application system. Make application at spray pressure of 25 psi or below, unless the manufacturer specifies otherwise. Achieve best possible spray delivery and coverage, with minimum amounts of fine spray droplets by utilizing properly chosen and adjusted nozzles, spray tips,

and screens.

Applications only to railroad rights of way can be made by helicopter.

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

When SULF 396 XL has been activated, it will provide control of listed weed species. The level of control will depend on the size and type of weed species when SULF 396 XL is activated. The control of listed germinating weed species will be reduced when rain or irrigation follows a period of dry weather.

Where there is prolonged periods when rainfall/irrigation is not available, alternative weed control methods should be considered.

Once a treatment with SULF 396 XL has been made, seedlings and germinating seeds absorb sulfentrazone from the soil solution. The amount of available active ingredient contained in the soil solution, is determined by the following factors:

- soil type
- soil pH
- soil organic matter content

### **Application by Air**

- Aerial application is allowed only when environmental conditions prohibit ground application.
- Aerial applications will be allowed when the field is too wet to safely apply pesticides using ground equipment.
- The maximum release height must be 10 feet from the top of the crop canopy, unless a greater application is required for pilot safety.
- Apply SULF 396 XL using appropriate nozzles that will allow for optimal coverage, will minimize drift and will keep fine spray droplets to a minimum.
- Apply SULF 396 XL in an appropriate volume for sufficient coverage. Use minimum spray volume of 5 gallons per acre.
- Do not apply SULF 396 XL when wind speed is likely to cause drift outside the target area.

### **Application by Ground**

- Apply SULF 396 XL using a boom and nozzle sprayer with the appropriate spray tips, screens and nozzles.



Application equipment must be calibrated for optimal coverage and spray distribution at the appropriate pressure.

- The maximum release height is 30 inches from the soil.
- Use spray nozzles that will minimize drift by keeping fine spray droplets to a minimum.
- Apply SULF 396 XL in a minimum spray volume of 10 gallons per acre. Avoid overlapping applications which may result in excessive treatment and adverse crop response. When starting, turning or stopping, slower ground speed of application equipment may also lead to excessive treatment
- When this product is tank mixed with a contact burndown herbicide, spray volume must be at least 15 gallons per acre.
- Do not apply SULF 396 XL when wind speed is likely to cause drift outside the target area

## **CALIFORNIA ONLY SPECIFIC RESTRICTIONS ON APPLICATIONS OF SULF 396 XL**

### **Runoff Ground Water Protection Areas**

Do not use in areas identified by the California Department of Pesticide Regulation as runoff ground water protection areas\* unless one of the following management practices can be met:

- a. Incorporation of the pesticide. Within 48 hours after the day this product is applied, the pesticide shall be incorporated on at least 90 percent of the area treated; using a disc, harrow, rotary tiller, or other mechanical method, or by sprinkler or low flow irrigation, including chemigation where allowed by the label, using a minimum of  $\frac{1}{4}$  inch of irrigation water and a maximum of one inch as described under Application Instructions, at application rates that do not cause surface water runoff from the treated property or to wells on the treated property; or
- b. Retention of runoff on field. For six months following the application, the field shall be designed, by berms, levees, or nondraining circulation systems, to retain all irrigation runoff and all precipitation on, and drainage through, the field. The retention area on the field shall not have a percolation rate of more than 0.2 inches per hour (5 inches per 24 hours); or
- c. Retention of runoff in a holding area off the field. For six months following application, all runoff shall be channeled to a holding area off the application site, under the control of the property owner, that is designed to retain all irrigation runoff and all precipitation on, and drainage through, the treated field and all other areas draining onto that holding area. The holding area shall not have a percolation rate of more than 0.2 inches per hour (5 inches per 24 hours); or
- d. Runoff onto a fallow field. For six months following application, runoff shall be managed so that it runs off onto an adjacent unenclosed fallow field at least 300 feet long that is not irrigated for six months after application with the exception of the addition of adequate moisture that is required for herbicidal activation following

application as described under Application Instructions, with full consideration of any plant back restrictions.

### **Artificial Recharge Basins**

Do not use below the high water line inside artificial recharge basins (a surface facility, such as an infiltration pond or basin, or spreading ground that is specifically designed and managed to increase the infiltration of introduced surface water supplies into a ground water basin), unless this product is applied six months or more before the basin is used to recharge ground water. Unlined Canals and Ditches. Do not use below the high water line inside unlined canals and ditches unless either (a) the pesticide user can document that the percolation rate of the canal or ditch is equal to or less than 0.2 inches per hour (0.002 gallons per minute per square foot), or (b) the pesticide is applied six months before water is run in the canal or ditch

### **Rights-of-Way**

Do not use on engineered rights-of-way in areas established by the California Department of Pesticide Regulation as leaching or runoff ground water protection areas\* unless either (a) any runoff from the treated right-of-way shall pass through a noncrop fully vegetated area adjacent, and equal in area, to the treated area, or spread out onto an adjacent unenclosed fallow field that is at least 300 feet long and that will not be irrigated for six months following application with the exception of the addition of adequate moisture that is required for herbicidal activation following application as described under Application Instructions, with full consideration of any plantback restrictions, or (b) the property operator complies with any permit issued pursuant to the storm water provisions of the federal Clean Water Act pertaining to the treated area.

### **Leaching Ground Water Protection Areas**

Do not use in areas designated by the California Department of Pesticide Regulation as leaching ground water protection areas\* unless either (a) the user does not apply any irrigation water for six months following application of this product or (b) the user applies this product to the planting bed or the berm above the level of irrigation water in the furrow or basin and the water level shall remain at or below the level for six months following application of the following application as described under Application Instructions, or (c) irrigation is managed so that the ratio of the amount of irrigation water applied divided by the net irrigation requirement is 1.25 or less for six months following application of this product.

\*Consult with your County Agricultural Commissioner to determine whether the application will be within an area designated by the California Department of Pesticide Regulation as either a Runoff Ground Water Protection Area or a Leaching Ground Water Protection Area. Details regarding the locations of these areas are also available via the internet at <http://www.cdpr.ca.gov/docs/emon/ehap.htm>

## Mixing with Liquid Fertilizers

SULF 396 XL may be applied in combination with liquid fertilizers. Local advice regarding fertilizers can yield recommendations of products best suited in your area (e.g., urea or DAN solutions). Follow use and mixing and directions on fertilizer labels. Determine the compatibility of a liquid fertilizer combination before mixing [In a lidded glass jar (~1 quart size), add all mix partners, in their relative proportions. Invert, shake or mix the jar thoroughly. If mixture forms precipitates (flakes or sludge), gels, balls up or forms oily films or layers, this indicates incompatibility. Though signs of incompatibility will typically be seen within 5 minutes of mixing, mixture should be observed for approximately 30 minutes].

## Mixing and Loading Instructions

- SULF 396 XL may be applied on its own or in combination with other herbicides for a broader spectrum of weed control. Combinations with other products may not have been tested, therefore, carry out a compatibility test before mixing and applying [In a lidded glass jar (~1 quart size), add all mix partners, in their relative proportions. Invert, shake or mix the jar thoroughly. If mixture forms precipitates (flakes or sludge), gels, balls up or forms oily films or layers, this indicates incompatibility. Though signs of incompatibility will typically be seen within 5 minutes of mixing, mixture should be observed for approximately 30 minutes].
- Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Spray equipment must be clean and free of product residue prior to mixing an application solution of SULF 396 XL. Refer to Cleaning Directions below and to the cleaning directions of the product(s) previously applied.
- Mix SULF 396 XL using the following procedure:
  1. Fill a clean spray tank with  $\frac{1}{2}$  of water required for treatment.
  2. Begin agitation.
  3. Use a clean container to create a slurry of SULF 396 XL and water\*.
  4. Add the slurry slowly to the spray tank, continuing agitation throughout.
  5. Rinse the slurry mix container and add rinsate solution to spray tank.
  6. Finish filling spray tank to required level.
  7. Maintain agitation throughout. The SULF 396 XL/water slurry must be mixed thoroughly prior to application.
    - \* For best mixing of the SULF 396 XL/water slurry, add the slurry using induction systems on the sprayer fill plumbing system.
- The spray application solution must be applied immediately following mixture.
- Maintain agitation throughout mixture and application.

- Do not store spray solution in the spray tank for an extended period of time, or overnight.
- A tank mixture containing SULF 396 XL must not be premixed in nurse tanks.

## **Cleaning Application Equipment**

Adverse crop reaction may result if residues of this product are left in spray equipment following application. Spray equipment must be cleaned immediately after treatment with SULF 396 XL, and before applications with other products.

- Use the following procedure
  1. Drain the spray application equipment, including tank, hoses, spray boom and nozzles.
  2. Clean inside the spray tank with a high-pressure detergent, removing residues and sediment.
  3. Thoroughly rinse the spray tank.
  4. Flush the spray system out using water, including hoses, spray boom and spray nozzles.
  5. Combine 3 gallons of ammonia (with a minimum of 3% active ingredient) in 100 gallons of water. Make sufficient cleaning solution to operate the spray application equipment for a minimum of 15 minutes so that the system is thoroughly flushed.
  6. Remove spray tips, and all screens and filters and clean separately using the ammonia solution (step 5).
  7. Leave the cleaning solution or water in the nozzles, spray booms, hoses and spray tank overnight (or during storage) to ensure thorough cleaning.
  8. Drain the system completely prior to re-use. Use clean water to rinse/flush nozzles, spray booms, hoses and the spray tank. Remove spray tips, and all screens and filters and clean separately, using the ammonia solution (step 5).
  9. Dispose of rinsate and excess cleaning solution in compliance with Federal, State, and local regulations and guidelines.
- Rinsate and cleaning solution must not be applied to sensitive crops.
- Spray application equipment must not be stored for any extended period while SULF 396 XL application solution remains in the spray lines, nozzles, strainers, or boom plumbing.
- When application equipment has been idle or in storage, flush the nozzles and spray boom with clean water prior to use for application of product.
- If small amounts of this product remain in equipment after cleaning, SULF 396 XL may be released during later applications, which may cause an adverse reaction from certain crops/other vegetation. The applicator is solely

responsible for any damage caused by equipment that is not properly cleaned.

- Equipment must not be flushed or drained near desirable plants/trees.
- Ensure that bodies of water are not contaminated with application solution, rinsate or cleaning solution, including water that may be used for other crops, i.e. irrigation water

### **SPRAY DRIFT REDUCTION ADVISORY**

To avoid drift, do not apply when wind speeds exceed 10 mph. Do not exceed spray pressures of 40 psi unless specified by the manufacturer of drift reducing spray tips and nozzles. Select nozzles and application pressure that deliver medium to coarse or larger spray droplets as indicated in the nozzle manufacturer's recommendations and in accordance with ASABE Standard S-572.

- Select coarse to very coarse droplet size when sulfentrazone is used as a pre-emergent/pre-plant application.
- Select medium to very coarse droplet size when sulfentrazone is used postemergence with a contact burndown herbicide.
- Applicators may spray only when wind speed is between 3 and 10 mph.
- Do not apply as spray droplets smaller than medium to coarse (defined by the ASABE standard).

### **Spray Drift Management**

**AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR AND THE GROWER.**

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 movement from aerial applications. These requirements do not apply to forestry applications, public health uses or to applications of dry materials.

1. The distance of the outermost nozzles on the boom must not exceed 75 % the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.
3. Observe the regulations of the State where applications are made.
4. Applicators must observe and abide by the requirements of the Aerial Drift Reduction Advisory.

## **Information on 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 for pesticide performance.

Applying larger droplets reduces drift potential but will not prevent drift if applications are made improperly or under unfavorable environmental conditions. (See information on Wind, Temperature and Humidity, and Temperature Inversions in subsequent sections).

## **Controlling Spray Droplet Size**

### **Volume**

Use high flow rate nozzles to apply the greatest practical spray volume. Nozzles with higher rated flow generally produce larger droplets.

### **Pressure**

When higher flow rates are needed, use higher flow rate nozzles rather than increasing spray pressure. Do not exceed the nozzle manufacturer's specified pressures. Lower pressure produces larger droplets in many types of nozzles.

### **Number of Nozzles**

Use the minimum number of nozzles that provide uniform coverage.

### **Nozzle Orientation**

For aerial application, the recommended practice is to orient nozzles so that the spray is released parallel to the airstream. This orientation usually produces larger droplets as compared to other nozzle orientations. Significant nozzle deflection from 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 for both ground and aerial applications. Solid stream nozzles oriented straight back usually produce the largest droplets and the lowest drift potential in aerial applications.

### **Boom Length**

For some aerial use patterns, reducing the effective boom length to less than 75% of the wingspan or rotor length may further reduce drift without reducing swath width.

### **Application Height**

To minimize spray drift, make applications at a height < 10 feet above the top of the "target plant canopy 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 aerial applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the upwind and downwind edges of the field, the applicator must compensate for this displacement by the path of the aircraft upwind. Increase swath adjustment or offset distance when conditions favor increased drift potential (higher winds, smaller droplets, etc).

## **Wind**

Drift potential is lowest between wind speeds of 3-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given wind speed. Do not make applications below 3 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 may potentially affect spray 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**

Do not make applications 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 low speed and variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common during conditions of limited cloud cover and little to no wind. They often begin to form as the sun sets and may often continue into the morning. The presence of a temperature inversion may be indicated by ground fog. However if fog is not present, the movement of smoke from a ground source or an aircraft smoke generator can also identify inversions. Smoke that remains in layers and moves laterally in a concentrated cloud (under low speed wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

## **Sensitive Areas**

Only apply pesticide when the wind is blowing away from sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops).

## **SULF 396 XL Drift**

If SULF 396 XL solutions drift into non-target areas, contact with other plants/crops can cause adverse reaction. Initially, adverse crop/plant reaction may be in localized areas, depending on factors such as plant sensitivity to the application solution and spray solution droplet size. Lesions or spots caused by drift may or may not coalesce. The effects of drift will not normally cause lasting effects on plant growth, but may adversely affect the value of fruit or foliage where value is affected by appearance. Where plants are sensitive to SULF 396 XL and drift is significant, defoliation may result.

Avoid drift of this product/solutions containing this product to non-target areas by taking adequate notice of the prevailing environmental conditions. Use appropriate and accurately calibrated application equipment and utilize treatment procedures that will minimize the risk of drift.

Misapplication of this product where label directions are not followed may result in drift. The applicator/user of this product is solely responsible for any misapplication of SULF 396 XL.

**TURF GRASSES**  
**(including Institutional Lawns, Athletic Fields, Golf Course Fairways  
and Roughs, and Commercial Sod Farms)**

SULF 396 XL can be used to control broadleaf, grass and sedge weeds in established turfgrasses (seeded, sodded or sprigged). Turf grasses should be established (good root system; uniform stand) tolerant to SULF 396 XL (see below). A healthy root system is necessary to fill in exposed edges, which are more susceptible to SULF 396 XL.

<b>Tolerant Turf Grasses</b>	
<b>Cool Season Grasses</b>	<b>Rate</b>
Bentgrass, creeping* Fescue Fine** ( <i>Festuca rubra</i> ) Fescue, Tall** ( <i>Festuca arundinacea</i> ) Ryegrass, Perennial ( <i>Lolium perenne</i> ) Bluegrass Kentucky ( <i>Poa pratensis</i> ) Bluegrass, Rough*** ( <i>Poa trivialis</i> )	Apply SULF 396 XL at 4 to 8 oz (0.125-0.25 lb a.i.) per acre (unless noted)
*Apply a maximum of 4 oz SULF 396 XL to creeping bentgrass ** An undesirable plant response can occur if applying SULF 396 XL to certain varieties of Chewings fine fescue or tall fescue.	



Warm Season Grasses	Rate
Bahiagrass*** ( <i>Paspalum notatum</i> ), Buffalograss ( <i>Buchloe dactyloides</i> ), Carpetgrass ( <i>Axonopus affinis</i> ), Centipedegrass ( <i>Eremochioa ophuidides</i> ), Kikuyugrass ( <i>Pennisetum clandestinum</i> ), Seashore Paspalum ( <i>Paspalum vaginatum</i> ), Zoysiagrass*** ( <i>Zoysia japonica</i> ), Bermudagrass ( <i>Cynadon dactylon</i> ), Bermudagrass Hybrids ( <i>Cyn bluegrass</i> ), St. Augustinegrass*** ( <i>Stenotaphrum secundatum</i> )	Apply SULF 396 XL at 8 to 12 oz (0.25-0.375 lb a.i.) per acre
***St. Augustine grass and some varieties of bahiagrass, rough bluegrass or zoysiagrass, particularly turfgrass that has been stress-weakened can experience temporary leaf surface discoloration (removed upon mowing) upon application of SULF 396 XL. Chemicals, certain cultural practices, disease, mechanical exposure and cultivation and weather can all be causes of stress-weakened turf.	

Not all varieties or cultivars have been tested with SULF 396 XL. Consult with university or weed management specialists for information on using SULF 396 XL with specific local varieties or cultivars of turfgrass. Prior to treatment on new turfgrass varieties, test response to SULF 396 XL by applying to a small area of turfgrass

Do not apply more than 0.375 lbs sulfentrazone (12.0 fl. oz. product) per acre per 12 month period. The 12 month period starts at the point of first application.

## Preemergence Weed Control

When applied as indicated on this label, the following weeds will be controlled or suppressed with SULF 396 XL.

Summer Annual Weeds	
Broadleaf Weeds	Application
Black medic ( <i>Meidcago lupulina</i> ) Pigweed, redroot ( <i>Amaranthus retroflexus</i> ) Prostrate knotweed ( <i>Polygonum aviculare</i> ) Spurge, prostrate ( <i>Euphorbia supine</i> ) Common purslane ( <i>Portulaca oleracea</i> ) Pigweed, smooth ( <i>Amaranthus hybridus</i> ) Spurge ( <i>Euphorbia spp</i> ) Spurge, spotted ( <i>Euphorbia maculate</i> )	Apply in early spring, prior to germination of weed seeds.
Grassy Weeds	
Barnyardgrass ( <i>Echinochloa crusgalli</i> ) Crabgrass, smooth ( <i>Digitana ischaemum</i> ) Foxtail, yellow ( <i>Setana glauca</i> ) Crabgrass, large ( <i>Digitrana sanguinalis</i> ) Foxtail, green ( <i>Setana vindis</i> ) Goosegrass ( <i>Eleusine indica</i> )	

**Winter Annual Weeds**

<b>Broadleaf Weeds</b>	<b>Application</b>
<p>Buttercups (<i>Ranunculus</i> spp.) Chickweed, common (<i>Stellana media</i>) Common groundsel (<i>Senecio vulgans</i>) Hairy bittercress (<i>Cardamine hirsute</i>) Knawel (<i>Scieranthus annuus</i>) Parsley piert (<i>Alchemilla microcarpa</i>) Violet, Johnny-jump-up (<i>Viola rafeinesquii</i>) Carolina geranium (<i>Geranium carolinianum</i>) Chickweed, mouseear (<i>Cerastium vulgatum</i>) Corn Speedwell (<i>Veronica arvensis</i>) Henbit (<i>Lamium amplexicaule</i>) Large Hop clover (<i>Trifolium campestre</i>) Spurweed (<i>Soliva pterosperma</i>)</p>	Apply in late summer or early fall.
<p><b>Grassy Weeds</b></p>	
<p>Annual bluegrass (<i>Poa annua</i>) Annual ryegrass (<i>Lolium multiflorum</i>)</p>	

## Postemergence Weed Control

When applied as indicated on this label, the following weeds in turfgrass will be controlled or suppressed with SULF 396 XL.

Broadleaf Weeds	Broadleaf Weeds, Cont.
<p>Bedstraw, catchweed (<i>Galium aparine</i>)                      Bittercress (<i>Cardamine</i> spp.)                      Buttercup (<i>Ranunculus</i> spp.)                      Carpetweed (<i>Mollugo verticillata</i>)                      Beggarweed, Florida (<i>Desmodium tortuosum</i>)                      Black Medic (<i>Medicago lupulina</i>)                      Carolina geranium (<i>Geranium carolinianum</i>)                      Chickweed, common (<i>Stellaria media</i>)                      Chickweed, mouseear (<i>Cerastium vulgatum</i>)                      Clover (<i>Trifolium</i> spp.)                      Cudweed (<i>Gnaphalium</i> spp.)                      Dock, curly (<i>Rumex crispus</i>)                      Eclipta (<i>Eclipta prostrata</i>)                      Fiddleneck (<i>Amsinckia</i> spp.)                      Galinsoga (<i>Galinsoga ciliata</i>)                      Goldenrod (<i>Solidago</i> spp.)                      Groundsel, common (<i>Senecio vulgaris</i>)                      Knawel (<i>Scieranthus annuus</i>)                      Kochia (<i>Kochia scoparia</i>)                      Lawn burweed (spurweed) (<i>Soliva pterosperma</i>)                      Mallow, common (<i>Malva neglecta</i>)                      Parsley piert (<i>Alchemilla arvensis</i>)                      Pigweed, smooth (<i>Amaranthus hybridus</i>)                      Pineapple weed (<i>Matricaria matricariodes</i>)                      Puncture weed (<i>Tribulus terrestris</i>)                      Pusley, Florida (<i>Richardia scabra</i>)                      Rocket, London (<i>Sisymbrium irio</i>)                      Smartweed, PA (<i>Polygonum pensylvanicum</i>)                      Speedwell (<i>Veronica</i> spp.)</p>	<p>Spurge, prostrate (<i>Euphorbia humistrata</i>)                      Star of Bethlehem (<i>Omithogalum umbellatum</i>)                      Violet, wild (<i>Viola pratensis</i>)                      Woodsorrel, creeping (<i>Oxalis corniculata</i>)                      Cinquefoil (<i>Potentilla</i> spp.)                      Copperleaf (<i>Ascalypha</i> spp.)                      Dandelion (<i>Taraxacum officinale</i>)                      Dollarweed (<i>Hydrocotyl umbellata</i>)                      Evening primrose (<i>Oenothera biennis</i>)                      Filaree (<i>Erodium</i> spp.)                      Garlic, wild (<i>Allium vineale</i>)                      Ground ivy (<i>Glechema hederacea</i>)                      Henbit (<i>Lamium amplexicaule</i>)                      Knotweed, prostrate (<i>Polygonum aviculare</i>)                      Lambsquarters, common (<i>Chenopodium album</i>)                      Lespedeza, common (<i>Lespedeza striata</i>)                      Onion, wild (<i>Allium canadense</i>)                      Pigweed, redroot (<i>Amaranthus retroflexus</i>)                      Pigweed, tumble (<i>Amaranthus albus</i>)                      Plantain, buckhorn (<i>Plantago lanceolata</i>)                      Purslane, common (<i>Portulaca oleracea</i>)                      Red weed (<i>Melochia corchorifolia</i>)                      Shepherd's purse (<i>Capsella bursa pastoris</i>)                      Sorrel, red (<i>Rumex acetosella</i>)                      Spurge, annual (<i>Euphorbia</i> spp.)                      Spurge, spotted (<i>Euphorbia maculata</i>)                      Velvetleaf (<i>Abutilon theophrasti</i>)                      Violet, Johnny-jump-up (<i>Viola rafeinesquii</i>)                      Woodsorrel, yellow (<i>Oxalis stricta</i>)</p>

Grassy Weeds	Sedges
Goosegrass ( <i>Eleusine indica</i> )	Kyllinga, green ( <i>Kyllinga brevifolia</i> ) Nutsedge, purple ( <i>Cyperus rotundus</i> )* Sedge, cylindrical ( <i>Cyperus retrorsus</i> ) Sedge, Surinam ( <i>Cyperus surinamensis</i> ) Kyllinga, false green ( <i>Kyllinga gracillima</i> ) Nutsedge, yellow ( <i>Cyperus esculentus</i> ) Sedge, globe ( <i>Cyperus glubulosus</i> ) Sedge, Texas ( <i>Cyperus polystachyos</i> )
<p><b>*NOTE:</b> Split applications give optimum control of purple nutsedge. When actively growing purple nutsedge is evident, apply as indicated below:</p> <p>Cool season grasses: 2 - 4 fl. oz. (0.0625-0.125 lb a.i.) SULF 396 XL per acre first application, followed by second application of 4 -6 fl. oz. (0.125-0.19 lb a.i.) per acre (do not exceed 8 fl. oz. (0.25 lb a.i.) total on cool season grasses)</p> <p>Warm season grasses: 6 - 8 fl. oz. (0.19-0.25 lb a.i.) SULF 396 XL per acre first application, followed by second application of 4-6 fl. oz. (0.125-0.19 lb a.i.) per acre (do not exceed 12 fl. oz. (0.375 lb a.i.) total on warm season grasses)</p> <p>Observe maximum rate per acre based on turf variety, as indicated above.</p> <p>Allow 35 days between applications</p>	

## Application Instructions

Apply amount of SULF 396 XL indicated above to turfgrass to control or suppress indicated weeds.

Best control is achieved with grassy weeds when applied with grasses are actively growing and small (pre tiller stage). Application rates lower than 12 fl. oz/ acre will control grasses for 60 days.

Optimum control of broadleaf weeds will occur if application is made shortly after weed emergence.

Applications to sprigged, overseeded or reseeded areas: Turfgrasses can be sprigged, overseeded or reseeded after SULF 396 XL applications. Best results are obtained from waiting at least 1 month after SULF 396 XL application before sprigging, overseeding or reseeded. If slight plant response can be tolerated, overseeding of Bermudagrass with perennial ryegrass can be done between 2 to 4 weeks after SULF 396 XL application.

Observing proper fertilization, irrigation and soil cultivating practices, and using mechanical or power seeding equipment will give optimum overseeding or reseeded results.

Optimum weed control is obtained with thorough spray coverage

### **Tank Mixes and Adjuvants**

Tank mixing with other pesticides registered for use on turfgrass can extend the weed control range and enhance efficacy of SULF 396 XL for both preemergence and postemergence control. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Use of adjuvants or surfactants with SULF 396 XL can cause short-term discoloration of some turf species.

United Turf Alliance, LLC does not advise use of SULF 396 XL with surfactants or adjuvants.

### **Important**

- Establish sod production areas for three (3) months before initial treatment with SULF 396 XL.
- Allow 35 days between applications.
- Maximum single application rate is 8 fl. oz. product (0.25 lbs a.i.) for cold season grasses and 12 fl. oz. product (0.375 lbs a.i.) for warm season grasses.
- Temporary undesirable effects can be caused by the use of surfactants with SULF 396 XL. Perform an on-site evaluation of surfactants for effects to turfgrasses and mixture compatibility prior to use.
- Do not apply more than 0.375 lbs sulfentrazone (12.0 fl. oz. product) per acre per 12 month period. The 12 month period starts at the point of first application.
- Pre harvest interval is 3 months
- Do not apply to ornamental beds or landscape ornamental plants.
- Do not feed forage or allow grazing of turf treated with SULF 396 XL
- Use of SULF 396 XL with surfactants is not advised unless surfactant / sulfentrazone combinations have previously proven to be safe to a particular turf variety
- Use of SULF 396 XL mixed with or applied within 7 days of herbicides containing the active ingredient trinexapac-ethyl can result in temporary turfgrass discoloration. Applying SULF 396 XL and trinexapac-ethyl herbicides 7 or more days apart decreases possibility of discoloration
- Do not apply SULF 396 XL to tees or putting greens on golf courses

## NON-CROP USES

### For use in Railroad, Highway, Roadside, Pipeline and Utility Rights of Way, Industrial Areas, Fence Rows, and Other Listed Non-Crop Sites

Apply SULF 396 XL to control susceptible weeds, maintain bare ground and complete vegetation control, and for residual control of germinating weeds in noncropland.

When applied as indicated on this label, the following weeds will be controlled with SULF 396 XL:

Beggarweed, Florida ( <i>Desmodium tortuosum</i> )	Chickweed, common ( <i>Stellaria media</i> )
Crabgrass species ( <i>Digitaria spp.</i> )	Daisy, American ( <i>Coreopsis grandiflora</i> )
Dayflower, Virginia ( <i>Commelina virginica</i> )	Fixweed ( <i>Descurainia sophia</i> )
Groundcherry, clammy (seedling) ( <i>Physallis heterophylla</i> )	Jimsonweed ( <i>Datura stramonium</i> )
ALS/Triazine resistant Kochia ( <i>Kochia scoparia</i> )	Lettuce, wild ( <i>Lactuca virosa</i> )
Milkweed, honeyvine ( <i>Ampelamus albidus</i> )	Morningglory species ( <i>Ipomoea spp.</i> )
Nightshade species ( <i>Solanum spp.</i> )	Palmer amaranth ( <i>Amaranthus palmeri</i> )
Pigweed, redroot ( <i>Amaranthus retroflexus</i> )	Thistle, Russian ( <i>Salsola iberica</i> )
Waterhemp, common ( <i>Amaranthus rudis</i> )	Carpweed ( <i>Mollugo verticillata</i> )
Copperleaf Hophornbeam ( <i>Acalypha ostryifolia</i> )	Croton, tropic ( <i>Croton glandulosus</i> )
Dayflower, common ( <i>Commelina communis</i> )	Dock, curly ( <i>Rumex crispus</i> )
Galinsoga, hairy ( <i>Galinsoga ciliata</i> )	Groundcherry, cutleaf ( <i>Physalis angulata</i> )
Kochia ( <i>Kochia scoparia</i> )	Lambsquarter, common ( <i>Chenopodium album</i> )
Mallow, common ( <i>Malva neglecta</i> )	Mexicanweed ( <i>Caperonia castanifolia</i> )
Mustard species ( <i>Brassica spp.</i> )	Nutsedge species ( <i>Cyperus spp.</i> )
Pigweed, smooth ( <i>Amaranthus hybridus</i> )	Texasweed ( <i>Caperonia palustris</i> )
Waterhemp, tall ( <i>Amaranthus tuberculatus</i> )	

See **Listed Weed Species** section of this label for information on additional weeds.

Application can be made to non-crop use sites including:

- **Railroad Rights-of-Way** - including railroad yards, railroad crossings and railroad bridge abutments
- **Highway, Roadside, Pipeline and Utility Rights-Of-Way** - including, but not limited to guardrails, road shoulders, electric utility substations, pipeline pumping stations, around electric transmission towers, around distribution line poles and other areas where complete vegetation control is needed
- **Industrial Areas, Fence Rows and Other Non-Crop Sites** - including production facilities, tank farms, storage areas, parking areas, lumber yards, airports, military installations, along fence rows and similar non crop sites

**Application Instructions**

Apply 8 - 12 fl. oz. / acre (0.25-0.375 lb a.i.)

Use higher rates:

- To extend length of control
- On soils with fine soil textures
- On soils with more than 2% organic matter

Do not use on soils with less than 1% organic matter (sandy soils)

**Application Rates**

Apply SULF 396 XL as a broadcast treatment at rates indicated, in enough water to obtain good coverage and to make at least 10 gallons finished spray per acre.

In order to assure appropriate amounts of moisture for activation of product, best results will be obtained if SULF 396 XL is applied in early spring, late summer or fall.

Make application with a boom and nozzle sprayer or boomless application system. Make application at spray pressure of 25 psi or below, unless the manufacturer specifies otherwise. Achieve best possible spray delivery and coverage with minimum amounts of fine spray droplets by utilizing properly chosen and adjusted nozzles, spray tips, and screens.

Applications only to railroad rights of way can be made by helicopter.

**Tank Mixes**

Tank mix SULF 396 XL with burndown herbicides (such as 2,4-D, dicamba, diquat, glyphosate, glyphosate trimesium, etc.). Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Adjuvants recommended for tank mix partner can be used.

**Important**

- Do not apply more than 0.375 lbs sulfentrazone (12.0 fl. oz. product) per acre per 12 month period. The 12 month period starts at the point of first application
- Do not use on soils with less than 1 % organic matter (sandy soils)
- Applications by helicopter can only be made to railroad rights of way



## STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Do not use or store around the home.

**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.

**PESTICIDE DISPOSAL:** Waste resulting from the use of this product may be disposed of at an approved waste disposal facility.

### CONTAINER HANDLING:

Nonrefillable container. Do not reuse or refill this container.

Triple rinse container (or equivalent) promptly after emptying.

**[For containers less than 5 gallons]** Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drop for 10 seconds after the flow begins to drip.

Fill the container  $\frac{1}{4}$  full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

**[For containers greater than 5 gallons]** Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container  $\frac{1}{4}$  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. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

### Steps to be taken in case material is released or spilled:

In case of release or spill, isolate area and keep unprotected persons or animals away from area. Dike and contain the spill with inert material (sand, earth, cat litter or commercial clay, etc.) and transfer liquid and solid diking material to separate containers for disposal. Remove contaminated clothing and was affected skin areas with soap and water. Wash clothing before re-use. Keep the spill out of all sewers and open bodies of water.

## **LIMITATION OF WARRANTY AND LIABILITY**

**IMPORTANT: READ BEFORE USE.** Read the entire Directions for Use, Conditions of Warranties and Limitations of Liability before using this product. If these terms and conditions are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following Disclaimer of Warranties and Limitations of Liability.

### **CONDITIONS**

The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Ineffectiveness, injury, and other unintended consequences may result because of such factors as manner of use or application (including misuse), the presence of other materials, weather conditions, and other unknown factors, all of which are beyond the control of United Turf Alliance, LLC. All such risks shall be assumed by the user or buyer.

### **DISCLAIMER OF WARRANTIES**

To the extent consistent with applicable law, United Turf Alliance, LLC makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond statements on this label.

### **LIMITATIONS OF LIABILITY**

To the extent consistent with applicable law, neither United Turf Alliance, LLC, the manufacturer, nor the Seller shall be liable for any indirect, special, incidental or consequential damages resulting from the use, handling, application, storage, or disposal of this product. To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use, handling, application, or storage of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid.

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