



U.S. ENVIRONMENTAL PROTECTION AGENCY
 Office of Pesticide Programs
 Registration Division (7505P)
 1200 Pennsylvania Ave., N.W.
 Washington, D.C. 20460

EPA Reg. Number:

5481-631

Date of Issuance:

12/10/19

NOTICE OF PESTICIDE:

Registration
 Reregistration
 (under FIFRA, as amended)

Term of Issuance:

Unconditional

Name of Pesticide Product:

223-18

Name and Address of Registrant (include ZIP Code):

Amvac Chemical Corporation
 4695 MacArthur Court, Suite 1200,
 Newport Beach, CA 92660

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is unconditionally registered in accordance with FIFRA section 3(c)(5) provided that you:

1. Submit and/or cite all data required for registration/reregistration/registration review of your product when the Agency requires all registrants of similar products to submit such data.
2. The data requirements for storage stability and corrosion characteristics (Guidelines 830.6317 and 830.6320) are not satisfied. A one year study is required to satisfy these data requirements. You have 18 months from the date of registration to provide these data.

Signature of Approving Official:

Erik Kraft, Product Manager 24
 Fungicide Herbicide Branch, Registration Division (7505P)

Date:

12/10/19

3. Make the following label changes before you release the product for shipment:
 - Revise the EPA Registration Number to read, “EPA Reg. No. 5481-631.”
4. Submit one copy of the revised final printed label for the record before you release the product for shipment.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA’s Office of Enforcement and Compliance.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records. Please also note that the record for this product currently contains the following CSFs:

- Basic CSF dated 12/17/2018
- Alternate CSF 1 dated 03/20/2019

If you have any questions, please contact Manjula Unnikrishnan by phone at 703-347-8520, or via email at unnikrishnan.manjula@epa.gov

Enclosure



223-18

IMAZAQUIN	GROUP	2	HERBICIDE
SULFENTRAZONE	GROUP	14	HERBICIDE

A Selective Herbicide for Use on Listed Warm Season Turfgrasses for Control of Kyllinga, Sedges and Other Listed Weed Species

Active Ingredients:

Imazaquin.....	16.0%
Sulfentrazone	8.0%
Inert Ingredients.....	.76.0%
TOTAL	100.0%

223-18 is soluble liquid formulation that contains 1.47 lbs. of imazaquin (CAS number 81335-37-7) and 0.73 lbs. of sulfentrazone (CAS number 122836-35-5) per gallon, respectively.

**KEEP OUT OF REACH OF CHILDREN
CAUTION/PRECAUCIÓN**

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

FIRST AID	
IF SWALLOWED:	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
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 immediately for treatment advice.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of soap and water for 15 – 20 minutes. • Call a poison control center or doctor for treatment advice.
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 mouth-to-mouth, if possible. • Call a poison control center or doctor for treatment advice.
EMERGENCY INFORMATION	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. FOR THE FOLLOWING EMERGENCIES, PHONE 24 HOURS A DAY: For Medical Emergencies phone:1-888-681-4261 For Transportation Emergencies, including spill, leak or fire, phone: CHEMTREC®1-800-424-9300 For Product Use Information phone: AMVAC®1-888-462-6822	

See inside for complete **Precautionary Statements, Directions For Use, Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

EPA Reg. No. 5481-xxx
EPA Est. No. _____



AMVAC Chemical Corporation
4695 MacArthur Court, Suite 1200,
Newport Beach, CA 92660

{Optional marketing claims:

Controls Kyllinga and nutsedge (and more than 60 additional listed weeds)

Controls (yellow nutsedge) (and) (purple nutsedge) (and more than 60 additional listed weeds)

Controls (Kyllinga), (nutsedge), (dandelion), (dollarweed), (ground ivy), (henbit), (lawn burweed), (spurge), (wild garlic), (wild onion), (yellow woodsorrel) (and other listed weeds)

Controls more than 70 listed weeds

Nutsedge killer

Kyllinga killer

Kills really tough (hard-to-kill*) weeds (in lawns) *including (Kyllinga, nutsedge) dandelion, dollarweed, wild onion and other listed weeds*

Controls listed summer-annual and winter-annual weeds

Dual modes of action for Kyllinga and nutsedge control

Sequential applications of the lower label rates (may) provide increased control of Kyllinga and nutsedge while enhancing turfgrass tolerance

One gallon (which contains 1.47lbs imazaquin and 0.73 lbs sulfentrazone) treats (approximately 3 to 6 acres) (2.94 to 5.88 acres)}

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Causes moderate eye irritation. Avoid contact with eyes or clothing.

Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Remove and wash contaminated clothing before reuse.

Personal Protective Equipment (PPE)

Mixers, Loaders, Applicators and other handlers must wear:

- Long-sleeved shirt and long pants.
- Protective eyewear.
- Chemical resistant gloves.
- Shoes plus socks.

Follow manufacturer's instructions for cleaning and 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:

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

ENVIRONMENTAL HAZARDS

DO NOT apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark.

Surface Water Advisory:

This product may impact surface water quality due to runoff of rain water. This is especially true for poorly draining soils and soils with shallow water.

This product is classified as having high potential for reaching surface water via runoff for several months or more after application. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential loading of [name of chemical] from runoff water and sediment. Runoff of this product will be reduced by avoiding applications when rainfall or irrigation is expected to occur within 48 hours.

DO NOT contaminate water by cleaning of equipment or disposal of waste. The use of this in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

Groundwater Advisory:

This chemical has properties and characteristics associated with chemicals detected in groundwater. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow.

DO NOT load or mix 223-18 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.

NON-TARGET ORGANISM ADVISORY:

This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated site. Protect the forage and habitat of non-target organisms by following label directions intended to minimize spray drift.

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. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

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 such as polyethylene or polyvinyl chloride.
- shoes plus socks.
- Protective eyewear.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of the 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.

DO NOT enter treated areas without protective clothing until sprays have dried.

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 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.

Observe all cautions and limitations on this label and on the labels of products used in combination with 223-18. The use of 223-18 not consistent with this label may result in plant injury. Keep containers closed to avoid spills and contamination.

PRODUCT AND APPLICATION INFORMATION

223-18 is soluble liquid formulation that contains 1.47 pounds of imazaquin and 0.73 pounds of sulfentrazone per gallon, respectively. 223-18 will control or aid in the control of many important weeds in warm-season turfgrasses including Bermudagrass, Centipedegrass, St. Augustinegrass and Zoysiagrass. 223-18 may be used on well-established turfgrass on grounds or lawns around residential, industrial, institutional and commercial establishments, golf courses, athletic fields, parks, cemeteries and sod farms. 223-18 will effectively control susceptible weeds when applied during the directed application timings (pre- and post-emergence).

Turfgrasses treated with 223-18 may have a compacted growth habit and formation of seed heads may be inhibited for 2-6 weeks depending on grass species and growing conditions at the time of application. Turf vigor is not impaired when the application rate, timing and turf species are followed according to label directions.

The activity of 223-18 involves uptake by weed roots and/or foliage and rapid translocation to growing points. Treated plants stop growing soon after spray application. Chlorosis appears first in the newest leaves, with necrosis spreading from this point. In perennials, the herbicide is translocated into, and kills, underground storage organs. Complete death may not occur for several weeks after application in susceptible weed species.

The amount of rainfall or irrigation required following application depends on existing soil moisture, density of turf and thatch or other surface vegetation, and soil type. Sufficient rainfall or irrigation of at least 0.25 to 0.5 inches is necessary for optimum herbicide activation.

Table 1: 223-18 may be applied to the following turfgrass species:

Common Name	Genus / species
Bermudagrass, Common	<i>Cynodon dactylon</i>
Bermudagrass, Hybrid	<i>C. dactylon</i> X <i>C. transvaalensis</i>
Centipedegrass	<i>Eremochloa ophiuroides</i>
St. Augustinegrass	<i>Stenotaphrum secundatum</i>
Zoysiagrass	<i>Zoysia</i> spp.

RESTRICTIONS

- Use only on well-established non-stressed turfgrass with a dense and uniform stand. Temporary yellowing of the turf may occur and recovery may take 2-4 weeks.
- **DO NOT** use on unlabeled turfgrass species, including Kentucky bluegrass, annual bluegrass, rough bluegrass, perennial ryegrass, fine fescues, tall fescue, creeping bentgrass, colonial bentgrass, velvet bentgrass, buffalograss, bahiagrass and dichondra. or in mixed stands containing these species
- **DO NOT** apply immediately prior to (within 6 weeks of) or during spring transition or during periods of very slow turf growth as severe discoloration could occur.
- **DO NOT** seed or winter overseed or sprig turfgrass for six weeks after applying 223-18.
- **DO NOT** apply to newly seeded, sprigged or sodded turfgrass until well established (after two mowings and providing the turf has developed into a uniform stand with a good root system).
- **DO NOT** apply 223-18 to St. Augustinegrass for winter weed control.
- **DO NOT** mow St. Augustinegrass until 48 hours after application.
- **DO NOT** use on golf greens or bowling greens.
- **DO NOT** apply this product through any type of irrigation system.
- **DO NOT** apply this product aerially.
- **DO NOT** allow spray to drift onto adjacent plants as injury to those plants may occur.
- Tank-mixtures of 223-18 must not be premixed in nurse tanks.
- **DO NOT** tank-mix 223-18 with other postemergence herbicides labeled for grass weed control in turf.
- **DO NOT** harvest sod within 3 months after application.
- **DO NOT** apply to ornamental beds or landscape ornamental plants.
- **DO NOT** apply this product around food producing trees or vines, berry bushes or in vegetable gardens.
- **DO NOT** use treated grass clippings as mulch in landscape beds or around vegetables in the garden or fruit trees, vines or berries in the landscape areas.
- **DO NOT** apply this product to bareground areas of the landscape where new ornamental plantings (including annual bedding plants) will be installed within the year.
- **DO NOT** graze or feed clippings of treated turfgrasses to animals.
- Maximum single application rate for turfgrass application is 1.0 fl. oz. per 1,000 sq. ft. (0.0115 lbs imazaquin/1000 sq. ft. and 0.0057 lbs sulfentrazone/1000 sq. ft.) [43.56 fl. oz./A; 0.5 lbs imazaquin/A and 0.25 lbs sulfentrazone/A].
- When utilizing an application rate of 1.0 fl. oz. per 1,000 sq. ft. (0.0115 lbs imazaquin/1000 sq. ft. and 0.0057 lbs sulfentrazone/1000 sq. ft.) only one application per year is allowed at that rate.
- When utilizing an application rate of 0.75 fl. oz. per 1,000 sq. ft. (0.0086 lbs imazaquin/1000 sq. ft. and 0.0043 lbs sulfentrazone/1000 sq. ft.) two applications per year are allowed at that rate.
- When utilizing an application rate of 0.5 fl. oz. per 1,000 sq. ft. (0.0057 lbs imazaquin/1000 sq. ft. and 0.0029 lbs sulfentrazone/1000 sq. ft.) three applications per year are allowed at that rate.
- Minimum application interval for turfgrass applications is 14 days.
- Maximum yearly application rate for turfgrass application is 1.5 fl. oz. per 1,000 sq. ft. (0.0172 lbs imazaquin/1000sq. ft. and 0.0086 lbs sulfentrazone/1000 sq. ft.) [65.34 fl. oz. per acre; 0.75 lbs imazaquin/A and 0.375 lbs sulfentrazone/A].

MIXING AND CHEMICAL COMPATIBILITY INFORMATION

223-18 must be prepared for use and applied in such a way as to prevent spills, improper disposal of spray mixtures, rinsate or any excess pesticide, and back-siphoning into wells.

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 223-18 from application equipment

The impervious pad must be made to contain any leaks or spills, as well as any rinsate/ washwater 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 minimum containment volumes must be maintained. The minimum capacity volumes do not apply to 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 223-18 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.

Use clean and properly calibrated spray equipment. Follow the directions of your State Cooperative Extension Service, consultant or pest control advisor for tank-mixing with other products. Add one half of the necessary volume of water to the spray or mixing tank and start agitation. Add 223-18 and tank-mix partner products to the tank in the following order: 1) water-soluble packets (wait for packets to completely dissolve); 2) wettable powders and water-dispersible granular products; 3) liquid flowables or suspension concentrates; 4) emulsifiable concentrates; 5) 223-18 and other soluble liquids; and 6) water soluble fertilizers, including AMS or UAN, and other spray additives. Complete tank filling by adding water to achieved the desired final volume. Maintain agitation throughout the application. **DO NOT** allow the spray mixture to remain in the tank overnight or for long periods of time during the day without agitation.

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

223-18 is compatible with most commonly used fungicide, insecticide, herbicide, plant growth regulator and foliar nutrient products. However, the physical compatibility of 223-18 with all potential tank-mix partners has not been fully investigated. If tank-mixing with other products is desired, conduct a jar test with the water volume and pesticide application rates that are being considered for turfgrass application. Place the appropriate quantity of water in a small jar and add the proportionate amounts of products in the following order: 1) wettable powders and water-dispersible granular products; 2) liquid flowables or suspension concentrates; and 3) emulsifiable

concentrates; 4) 223-18 and other soluble liquids; and 5) water soluble fertilizers, including AMS or UAN, and other spray additives. After mixing thoroughly, let the mixture stand for at least 15 minutes then observe looking for signs of separation, globules, sludge, flakes or other precipitates. Physical compatibility is confirmed if the combination remains mixed or can be remixed readily by shaking lightly.

Use of 223-18 tank-mixed with or applied within 7 days of products containing the active ingredient trinexapac-ethyl can result in temporary turfgrass discoloration. Applying 223-18 and trinexapac-ethyl containing products 7 or more days apart decreases the possibility of discoloration.

Mixing with Liquid Fertilizers: Use local directions for sources and application rates of fertilizer and refer to the mixing directions on the fertilizer label(s) (e.g. UAN or urea solutions). Determine the compatibility of 223-18 with the desired liquid fertilizer by mixing small proportionate quantities before making wide scale applications – see jar test method above.

SPRAYER EQUIPMENT CLEAN-OUT

After applying 223-18 and before using spray equipment for any other application, the sprayer must be thoroughly cleaned using the following procedures:

- 1) Drain the spray tank, hoses and spray boom and thoroughly rinse the inside of the spray tank with clean water to remove sediment and residues. In addition, thoroughly flush hoses, boom and nozzles with clean water.
- 2) Fill the spray tank $\frac{1}{2}$ full with clean water and add an 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.

TURFGRASS APPLICATIONS

223-18 may be used selectively to control weeds anytime during the year except immediately prior to (within 6 weeks of) and during transition from turfgrass winter dormancy. Optimum control is achieved when weeds have recently emerged and are actively growing.

Application rates range from 0.5 fl. oz. per 1,000 sq. ft. (0.0057 lbs imazaquin/1000 sq. ft. and 0.0029 lbs sulfentrazone/1000 sq. ft.) to 1.0 fl. oz. of 223-18 per 1,000 sq. ft. (0.0115 lbs imazaquin/1000 sq. ft. and 0.0057 lbs sulfentrazone/1000 sq. ft.) [21.78 to 43.56 fl. oz. per acre respectively; equating to 0.25 lbs imazaquin/A and 0.125 lbs sulfentrazone/A to 0.5 lbs imazaquin/A and 0.25 lbs sulfentrazone/A respectively].

Repeat applications may be necessary, but **DO NOT** apply more than 1.5 fl. oz. per 1,000 sq. ft. (0.0172 lbs imazaquin/1000sq. ft. and 0.0086 lbs sulfentrazone/1000 sq. ft.) [65.34 fl. oz. per acre; 0.75 lbs imazaquin/A and 0.375 lbs sulfentrazone/A] annually. The high application rate may be needed where heavy weed infestations occur. Use water as the carrier for 223-18.

Uniformly apply 223-18 with a properly calibrated sprayer in sufficient volume to ensure adequate coverage (20-200 gallons/acre). Avoid drift onto vegetables, flowers, ornamental shrubs and other desirable plants or injury may result. Avoid overlaps when spraying. A spray indicator dye may be added to prevent overlaps.

For SPOT SPRAYING with a hand-held or back-pack sprayer, mix 1.0 fl. oz. per 1,000 sq. ft. (0.0115 lbs imazaquin/1000 sq. ft. and 0.0057 lbs sulfentrazone/1000 sq. ft.) to 2.0 fl. oz. per 1,000 sq. ft. (0.023 lbs imazaquin/1000 sq. ft. and

0.0114 lbs sulfentrazone/ 1000 sq. ft.) of 223-18 per 3 gallons of water and spray to wet. (Note: 3 gallons of spray solution will treat approximately 2,000 sq. ft.).

The best turf tolerance occurs under totally dormant or optimal growing conditions. When the turfgrass is growing under marginal conditions, including low temperatures, drought stress, compaction, etc., temporary yellowing or browning can occur and recovery may take 2-4 weeks. Discolored leaf tissue can be removed by mowing and turfgrass will recover with new growth.

If product is applied where runoff is likely to occur, including embankments or steep slopes, irrigation needs to be applied (0.05 to 0.1 inches) to incorporate the product into the soil to prevent movement and injury of nearby sensitive turf including over-seeded areas and bentgrass tees and greens. When making applications adjacent to sensitive turfgrasses, including bentgrass and perennial ryegrass, care must be taken not to track (either by foot or equipment tracking) 223-18 onto these areas.

Irrigation or rainfall of 0.25 to 0.5 inches is suggested within 1-7 days after application to incorporate 223-18 into the shoot/root zone where greatest weed control activity occurs.

Addition of Surfactants:

A non-ionic surfactant at the rate of 1 quart per 100 gallons (0.25% v/v) needs to be added to the spray mixture. Add the non-ionic surfactant to the spray mixture after herbicide(s) have mixed. An antifoaming agent may be added to the tank, if needed. Caution: the use of surfactants, adjuvants or other spray additives can cause short-term discoloration of some turfgrass species. High temperatures and high relative humidity may increase the risk of temporary turf discoloration. Before wide scale use, an on-site evaluation of surfactants, adjuvants and other spray additives for effects on turfgrasses and mixture compatibility is advised.

Other Spray Additives:

Use of other spray additives including spreaders, extenders, trace elements or fertilizers needs to be evaluated on a small scale before making wide scale applications. The label directions for use provided here are based on data obtained with no additives and the use of these products with 223-18 may affect the results. Contact local university extension service personnel or an AMVAC representative before using spray additives with 223-18.

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 advised that sod be established for at least three months before an application of 223-18. **DO NOT** apply this product within three months of harvest.

CONTROL OF KYLLINGA AND SEDGES

223-18 provides effective kyllinga and sedge control while offering application flexibility that may enhance turfgrass tolerance. For Kyllinga and sedge control, the highest application rate of 223-18 of 1.0 fl. oz per 1,000 sq. ft. (0.0115 lbs imazaquin/1000 sq. ft. and 0.0057 lbs sulfentrazone/1000 sq. ft.) delivers 0.5 lbs imazaquin/A, the same active ingredient as in Scepter® T&O 70WDG Herbicide (EPA Reg. No. 5481-613; contains imazaquin) and 0.25 lbs sulfentrazone/A the same active ingredient as in Surepvc® herbicide (EPA Reg. No.74530-63-5481; contains sulfentrazone). Both active ingredients are effective against Kyllinga and sedges and their activity is based on different modes of action. See the Resistance Management section of this label.

Sequential Applications:

Sequential applications are often necessary for effective Kyllinga and sedge control. 223-18 was designed so that two applications at 0.75 fl. oz. per 1,000 sq. ft. (0.0086 lbs imazaquin/1000 sq. ft. and 0.0043 lbs sulfentrazone/1000 sq. ft.) delivers the maximum annual application rates of imazaquin (0.75 lbs AI/A) and sulfentrazone (0.375 lbs AI/A). The second application needs to be made two to six weeks after the first application. Optimum control is usually

achieved when the second application is made four weeks after the first application. Using two sequential applications may also reduce the incidence and severity of turfgrass injury.

Further enhancement of turf tolerance may be achieved by using three sequential applications of 233-18 at the 0.5 fl. oz. per 1,000 sq. ft. application rate (0.0057 lbs imazaquin/1000 sq. ft. and 0.0029 lbs sulfentrazone/1000 sq. ft.). This approach will also deliver the maximum annual application rate of both active ingredients and the use of this low application rate minimizes the potential for turfgrass injury. When using three applications, they need to be made two to four weeks apart. The minimum application interval for 223-18 is 14 days Table 2 shows the maximum number of applications per year for each label application rate.

Table 2: Maximum number of applications per year

Product	Application Rate			Maximum Number of Applications per Year	
	Fl. oz. Product per 1,000 SQFT	Fl. oz. Product per Acre	lbs AI/A		
223-18	0.5	21.78	imazaquin	0.25	3
			sulfentrazone	0.125	
	0.75	32.67	imazaquin	0.375	2
			sulfentrazone	0.1875	
	1.0	43.56	imazaquin	0.5	1
			sulfentrazone	0.25	

KYLLINGA AND SEDGE SPECIES CONTROLLED		
Common Name	Genus / species	Life Cycle
Kyllinga, False Green	<i>Kyllinga gracillima</i>	Perennial
Kyllinga, Green	<i>Kyllinga brevifolia</i>	Perennial
Nutsedge, Purple	<i>Cyperus rotundus</i>	Perennial
Nutsedge, Yellow	<i>Cyperus esculentus</i>	Perennial
Rice Flatsedge	<i>Cyperus iria</i>	Annual
Sedge, Cylindric	<i>Cyperus retrorsus</i>	Perennial
Sedge, Globe	<i>Cyperus flavidus</i>	Perennial
Sedge, Surinam	<i>Cyperus surinamensis</i>	Perennial
Sedge, Texas	<i>Cyperus polystachyos</i>	Annual / Perennial

Weed names are listed according to the Composite List of Weeds by the Weed Science Society of America

ADDITIONAL TURFGRASS WEEDS CONTROLLED

Control of Summer Weeds:

For the postemergence control of listed summer annual and perennial weeds, applications of 223-18 needs to be timed following spring transition of the turf and prior to the onset of winter dormancy. This application timing coincides with the period of active turf and summer weed growth. Refer to all turfgrass application directions and restrictions prior to use.

Control of Winter Weeds:

For the control of winter annual and perennial weeds, including wild garlic, wild onion, henbit, chickweed, lawn burweed, etc., applications needs to be timed to follow the first frost. 223-18 may be applied prior to or soon after emergence of the weeds listed with the exception of wild onion and wild garlic, which must be emerged at

application time to achieve control. Control of emerged weeds may take several weeks. Applications made prior to the first frost or during the dormant period (inactive weed growth) may result in reduced weed control. Applications must not be made less than six weeks prior to the initiation of spring transition. Refer to all turfgrass application directions and restrictions prior to use.

Additional turfgrass weed species are controlled or suppressed at specified rates per 1,000 sq. ft.:

WEED SPECIES CONTROLLED BY A MINIMUM OF 0.5 FL. OZ. PER 1,000 SQ. FT. (0.0057 lbs imazaquin/1000 sq. ft. and 0.0029 lbs sulfentrazone/1000 sq. ft.)		
Common Name	Genus / species	Life Cycle
Black Medic	<i>Medicago lupulina</i>	Annual
Buttercup	<i>Ranunculus parviflorus</i>	Winter annual
Carpetweed	<i>Mollugo verticillata</i>	Annual
Chickweed, Common	<i>Stellaria media</i>	Winter annual
Chickweed, Mouseear	<i>Cerastium fontanum vulgare</i>	Perennial
Dollarweed (Water Pennywort)	<i>Hydrocotyle umbellata</i>	Perennial
Eclipta	<i>Eclipta prostrata</i>	Annual
Geranium, Carolina	<i>Geranium carolinianum</i>	Winter annual
Henbit	<i>Lamium amplexicaule</i>	Winter annual
Knawel	<i>Scleranthus annuus</i>	Winter annual
Lawn Burweed	<i>Soliva sessilis</i>	Winter annual
Parsley-piert	<i>Aphanes arvensis</i>	Winter annual
Pigweed species	<i>Amaranthus</i> spp.	Annual
Sorrel, Red	<i>Rumex acetosella</i>	Perennial
Wild Garlic	<i>Allium vineale</i>	Winter perennial
Wild Onion	<i>Allium canadense</i>	Winter perennial
WEED SPECIES CONTROLLED BY A MINIMUM OF 0.75 FL. OZ. PER 1,000 SQ. FT. (0.0086 lbs imazaquin/1000 sq. ft. and 0.0043 lbs sulfentrazone/1000 sq. ft.)		
Common Name	Genus / species	Life Cycle
Bedstraw, Catchweed	<i>Galium aparine</i>	Annual
Beggarweed, Florida	<i>Desmodium tortuosum</i>	Annual / Perennial
Cinquefoil	<i>Potentilla</i> spp.	Perennial
Clover	<i>Trifolium</i> spp.	Perennial
Copperleaf	<i>Acalypha</i> spp.	Perennial
Cudweed species	<i>Gnaphalium</i> spp.	Annual / Biennial
Curly Dock	<i>Rumex crispus</i>	Perennial
Dandelion	<i>Taraxacum officinale</i>	Perennial
Dovestool (Dovefoot Geranium)	<i>Geranium molle</i>	Winter annual
Fiddleneck	<i>Amsinckia</i> spp.	Winter Annual
Field Sandbur	<i>Cenchrus spinifex</i>	Annual/short-lived perennial
Filaree	<i>Erodium</i> spp.	Winter Annual / Biennial
Galinsoga	<i>Galinsoga ciliate</i>	Annual
Goldenrod	<i>Solidago</i> spp.	Perennial
Ground Ivy	<i>Glechoma hederacea</i>	Perennial
Groundsel, Common	<i>Senecio vulgaris</i>	Annual / Biennial
Hairy Bittercress	<i>Cardamine hirsuta</i>	Winter annual
Knotweed, Prostrate	<i>Polygonum aviculare</i>	Annual / Perennial
Kochia	<i>Bassia scoparia</i>	Annual

Lambsquarters, Common	<i>Chenopodium album</i>	Annual
Lespedeza, Common	<i>Kummerowia striata</i>	Annual
Mallow, Common	<i>Malva neglecta</i>	Winter Annual / Biennial
Perennial Ryegrass	<i>Lolium perenne</i>	Perennial
Pineapple-weed	<i>Matricaria discoidea</i>	Annual
Plantain, Buckhorn	<i>Plantago lanceolata</i>	Annual / Biennial / Perennial
Evening-primrose, Cutleaf	<i>Oenothera laciniata</i>	Winter annual
Evening-primrose, Common	<i>Oenothera biennis</i>	Biennial
Puncturevine	<i>Tribulus terrestris</i>	Annual
Purple Deadnettle	<i>Lamium purpureum</i>	Winter annual
Purslane, Common	<i>Portulaca oleracea</i>	Annual
Pusley, Florida	<i>Richardia scabra</i>	Annual
Redweed	<i>Melochia corchorifolia</i>	Annual
Rocket, London	<i>Sisymbrium irio</i>	Annual
Sheperd's-purse	<i>Capsella bursa-pastoris</i>	Annual
Smartweed, Pennsylvania	<i>Persicaria pensylvanica</i>	Annual
Speedwell	<i>Veronica</i> spp.	Winter annual
Spurge	<i>Euphorbia</i> spp.	Annual
Spurge, Prostrate	<i>Euphorbia prostrata</i>	Annual
Spurge, Spotted	<i>Euphorbia maculata</i>	Annual
Star-of-Bethlehem	<i>Omithogalum umbellatum</i>	Perennial
Velvetleaf	<i>Abutilon theophrasti</i>	Annual
Violet, Common Blue	<i>Viola sororia</i>	Winter Annual / Perennial
White Clover	<i>Trifolium repens</i>	Perennial
Woodsorrel, Creeping	<i>Oxalis corniculata</i>	Annual / Perennial
Woodsorrel, Yellow	<i>Oxalis stricta</i>	Perennial
WEED SPECIES SUPPRESSED BY A MINIMUM OF 1.0 FL. OZ. PER 1,000 SQ. FT. (0.0115 lbs imazaquin/1000 sq. ft. and 0.0057 lbs sulfentrazone/1000 sq. ft.)		
Common Name	Genus / species	Life Cycle
Annual Bluegrass	<i>Poa annua</i>	Winter annual
Annual Sedge	<i>Cyperus compressus</i>	Annual
Bahiagrass	<i>Paspalum notatum</i>	Perennial
Crabgrass species	<i>Digitaria</i> spp.	Annual
Cudweed, Purple	<i>Gamochaeta purpurea</i>	Annual/Biennial
Goosegrass	<i>Eleusine indica</i>	Annual
Tall Fescue	<i>Lolium arundinaceum</i>	Perennial
Virginia buttonweed	<i>Diodia virginiana</i>	Perennial
<i>Weed names are listed according to the Composite List of Weeds by the Weed Science Society of America</i>		

Additional turfgrass weeds controlled with sequential applications:

Sequential applications will provide control of the following weeds when 3 applications of 223-18 are made at 0.5 fl. oz. (0.0057 lbs imazaquin and 0.0029 lbs sulfentrazone) per 1,000 sq. ft. Applications need to be made at two to four week intervals.

WEED SPECIES CONTROLLED BY 3 APPLICATIONS OF 0.5 FL. OZ. PER 1,000 SQ. FT. (0.0057 lbs imazaquin/1000 sq. ft. and 0.0029 lbs sulfentrazone/1000 sq. ft.)			
Common Name	Genus / species	Life Cycle	Initial Application Timing
Doveweed	<i>Murdannia nudiflora</i>	Summer Annual/ Perennial	Mid-June to early July

TURFGRASS APPLICATION DILUTION CHART

Application Volume (Gallons per 1,000 Sq. Ft.)	Application Rate		Fluid Ozs. of 223-18 Diluted to These Volumes of Finished Spray			
	Product per 1,000 SQFT	Product Per Acre	25 Gallons	50 Gallons	100 Gallons	200 Gallons
0.5	0.5	21.78	25	50.	100	200
	0.75	32.67.	37.5	75	150	300
	1.0	43.56	50	100	200	400
0.75	0.5	21.78	16.67	33.33	66.67.	133.33
	0.75	32.67	25	50.	100	200
	1.0	43.56	33.33	66.67	133.33	266.67
1	0.5	21.78	12.5	25	50	100
	0.75	32.67	18.75	37.5	75	150
	1.0	43.56	25	50	100	200.
2	0.5	21.78	6.25	12.5	25	50
	0.75	32.67	9.38	18.75	37.5	75
	1.0	43.56	12.5	25	50	100

RESISTANCE MANAGEMENT

IMAZAQUIN	GROUP	2	HERBICIDE
SULFENTRAZONE	GROUP	14	HERBICIDE

223-18 contains active ingredients that inhibit acetolactate synthase and protoporphyrinogen oxidase. To maintain the long-term effectiveness of 223-18, it should be incorporated into a weed management program that utilizes as many different modes of action as possible to control target weeds. Agronomic and cultural practices that reduce

overall weed pressure are a critical component of resistance management. Contact your local university cooperative extension service or pest management consultant for information on resistance management.

Areas to be treated should be scouted prior to application to identify the weed species present and their growth stage to determine if the intended application will be effective. The treated area should be observed one month after application to verify that the treatment was effective. Report any incidence of non-performance of this product against a particular weed species to your AMVAC representative or call 1-888-462-6822. If resistance is suspected, treat weed escapes with an herbicide that has a different mode of action. Difficult to control weeds may require sequential application of herbicides and multiple modes of action. Apply this product at the correct timing and application rate to control the most difficult weed in the area being treated.

Contact your local sales representative, turf consultant or extension agent to find out if suspected resistant weeds to these modes of action have been found in your region. **DO NOT** assume that each listed weed (other than Kyllingas and sedges) is being controlled by multiple modes of action. Some weeds may be controlled by only one active ingredient in this product.

SPRAY DRIFT MANAGEMENT

MANDATORY SPRAY DRIFT

GROUND BOOM AND BOOM-LESS APPLICATIONS

- User must only apply with the release height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy unless making a turf, pasture, or rangeland application, in which case applicators may apply with a nozzle height no more than 4 feet above the ground.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- Do not apply during temperature inversions.

SPRAY DRIFT ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT.

BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

Boom-less Ground Applications: setting nozzles at the lowest effective height will help reduce the potential for spray drift.

Handheld Technology Applications: take precautions to minimize spray drift.

IMPORTANCE OF DROPLET SIZE: An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

Controlling Droplet Size-Ground Boom

- Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure – Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.

- Spray Nozzle – Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

BOOM HEIGHT: Ground boom: For ground equipment, the boom should remain level with the crop and have minimal bounce.

WIND: Drift potential generally increase with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS. Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

SHIELDED SPRAYERS: Boom or nozzle shielding can reduce the effects of wind or air currents on drift. Consider using shielded sprayers. Verify that shields do not interfere with uniform deposition of product before application.

TEMPERATURE AND HUMIDITY: When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

TEMPERATURE INVERSION: Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

USES WITH OTHER PRODUCTS (TANK-MIXES)

To the extent consistent with applicable law if 223-18 is used in combination with any other product not specifically directed in writing by AMVAC then AMVAC shall have no liability for any loss, damage, or injury arising out of its use. To the extent consistent with applicable law if 223-18 is used in a combination directed by AMVAC in writing the liability of AMVAC shall, in no manner, extend to any damage, loss or injury not directly caused by the inclusion of the AMVAC product in such combination use. In any event and to the extent consistent with applicable law liability will be limited per the warranty terms stated elsewhere on this label.

STORAGE AND DISPOSAL

DO NOT contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE: Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat. Carefully open containers. After partial use, replace lids and close tightly. **DO NOT** put concentrate or dilute material into food or drink containers.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. Call CHEMTREC: 1-800-424-9300.

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: Pesticide wastes are toxic. **DO NOT** contaminate water, food or feed by storage or disposal. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. Dispose of excess or waste pesticide by use according to label directions, or contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: Empty containers retain vapor and product residues

Plastic Containers (five gallons or less): Nonrefillable container. **DO NOT** reuse or refill this container. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ 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 incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke

LIMITED WARRANTY AND DISCLAIMER

The manufacturer warrants (a) that this product conforms to the chemical description on the label; and (b) that the directions, warnings, and other statements on this label are based upon responsible experts' evaluations of reasonable tests of effectiveness, of toxicity to laboratory animals and to plants and residues on food crops, and upon reports of field experience. Tests have not been made on all varieties of food crops and plants, or in all states or under all conditions. THIS WARRANTY DOES NOT EXTEND TO THE USE OF THIS PRODUCT CONTRARY TO LABEL INSTRUCTIONS, OR UNDER CONDITIONS NOT REASONABLY FORESEEABLE.

THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE SET FORTH HEREIN. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW THE MANUFACTURER NEITHER MAKES NOR INTENDS, NOR DOES IT AUTHORIZE ANY AGENT OR REPRESENTATIVE, TO MAKE ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, AND IT EXPRESSLY EXCLUDES AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTY OF QUALITY OR PERFORMANCE. THIS WARRANTY DOES NOT EXTEND TO, AND THE BUYER SHALL BE SOLELY RESPONSIBLE FOR, ANY AND ALL LOSS OR DAMAGE WHICH RESULTS FROM THE USE OF THIS PRODUCT IN ANY MANNER WHICH IS INCONSISTENT WITH THE LABEL DIRECTIONS, WARNINGS OR CAUTIONS.

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