



# PAC 223

Plant Growth Regulator for Non-Residential Turfgrass

**ACTIVE INGREDIENT:**

Paciobutrazol: (±)-(R*,R*)-β- [[4-chlorophenyl)methyl]-α- (1,1-dimethylethyl)-1H-1,2,4-triazole -1-ethanol).....	22.3%
<b>OTHER INGREDIENTS:</b> .....	77.7%
<b>TOTAL:</b> .....	100.0%

ArmorTech PAC 223 contains 2 lbs. active ingredient per gallon.

EPA Reg. No.: 80697-4-86064  
EPA Est. No.: 069845-CHN-002

**KEEP OUT OF  
REACH OF  
CHILDREN**

**CAUTION**

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS  
AND DOMESTIC ANIMALS**

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

**STORAGE AND  
DISPOSAL**

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty container.

**PESTICIDE STORAGE:** Keep container closed when not in use. Do not store near food or feed. Protect from freezing. In case of spill or leak on floor or paved surfaces, soak up with sand, earth or synthetic absorbent. Remove to chemical waste area.

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the hazardous waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

See inside label booklet for First Aid, additional Precautionary Statements, and Directions for Use.  
Manufactured for: United Turf Alliance, LLC \*8014 Cumming Highway, Suite 403-282, Canton GA 30115

**Net Contents: 1 Gallon (3.79 Liters)**

SHAKE WELL BEFORE USE      EPA 20140307



**United Turf Alliance**

PULL HERE TO OPEN

<b>FIRST AID</b>	
<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.</li> <li>• 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 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>
<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 mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>HOT LINE NUMBER</b>	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact PROSAR (800) 308-5391 for emergency medical treatment information.	

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
CAUTION**

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

**PERSONAL PROTECTIVE EQUIPMENT**

**Personal Protective Equipment (PPE)**

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category F on an EPA chemical resistance category selection chart.

**Applicators and other handlers must wear:**

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride, or viton
- Shoes plus socks

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. Wash PPE after each day's use.

**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 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. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters.

**PHYSICAL OR CHEMICAL HAZARDS**

Do not use or store near heat or open flame.

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**DIRECTIONS FOR USE**

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**Failure to follow directions and precautions on this label may result in plant injury or poor disease control.**

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. Read all label directions carefully before use.

**Do not** apply this product when wind speed favors drift beyond the area intended for treatment.

**Do not** use on residential lawns.

**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), notification to workers, 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
- Chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride, or viton
- Shoes plus socks

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**GENERAL INFORMATION**

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ArmorTech PAC 223 is a systemic plant growth regulator that slows vegetative growth by inhibiting gibberellin biosynthesis for use on turfgrass.

For turf, when ArmorTech PAC 223 is applied as directed, vertical growth of turf will be slowed within 3-10 days, resulting in reduced mowing frequency for a 6 to 8 week period on St. Augustine grass and Kentucky bluegrass/perennial ryegrass turf areas, as well as established bent grass, hybrid bermuda grass and perennial ryegrass tees, fairways and roughs.

Following ArmorTech PAC 223 applications, turf will gradually undergo increased greening and density, which may persist up to 12 weeks.

ArmorTech PAC 223 can be used on turfgrass in the following areas: golf courses, (tees, fairways, greens and rough), athletic fields, commercial and industrial areas, parks, and boulevards.

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**NON-RESIDENTIAL TURF**

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ArmorTech PAC 223, a specialty plant growth regulator that slows vertical grass growth and reduces mowing for up to two (2) months after application. The frequency of mowing can be reduced by up to 50% during the period of effective retardation. Use of ArmorTech PAC 223 on fine turf should be accompanied by moderate-to-high fertility to maintain turfgrass appearance and reduce discoloration.

ArmorTech PAC 223 can be used on turfgrass in the following areas: golf courses, (tees, fairways, greens and rough), athletic fields, commercial and industrial areas, parks, and boulevards.

**USE DIRECTIONS**

<b>Turf</b>	<b>Application Rate (Product amount/a.i.-lbs per acre)</b>	<b>Potential Effects</b>
St Augustine, Bermuda & similar warm season grasses	0.5 lbs. a.i. 32 fl. oz prod/A (Sandy soil) 0.75 lbs a.i. 48 fl. oz prod/A (Clay soil)	Reduced mowing for 6-8 weeks on established hybrid bermudagrass, bent grass and perennial ryegrass fairways, tees and roughs and on St. Augustinegrass and Kentucky bluegrass/perennial ryegrass turf.
Bluegrass, Rye, Fescue, Bent & similar cool season grasses (except putting greens)	0.25 to 0.50 lbs a.i. 16 -32 fl. oz prod/A Reduce by 50% if <i>Poa annua</i> is a major turfgrass population	Following application, turf will gradually increase in density with tighter knit areas of turfgrass. This will result in a reduced potential for scalping of all turfgrass areas.
Bentgrass Putting Greens & Overseeded Bermuda	0.10 to 0.25 lbs a.i. 6.4 -16 fl. oz prod/A	Suppression of <i>Poa annua</i> by reducing its growth and its compatibility, leading to selective control after prolonged use.

Apply ArmorTech PAC 223 with standard pressurized application equipment with by-pass or mechanical agitation using 50 mesh strainer to turf in sufficient amount of water (minimum 1 gal water /1,000 sq ft. = 43.5 gals/Ac) to ensure spray coverage uniformly to turf and to avoid skipping and/or overlapping.

For best results, use 2 to 5 gals water /1,000 sq ft. and apply 0.25 inch of water within 24 hours after application to remove product from foliage and onto soil surface.

ArmorTech PAC 223 can be used any time when established hybrid bermudagrass and St. Augustinegrass are green, actively growing and have recovered from dormancy after winter.

ArmorTech PAC 223 can be applied in spring after green-up and after turf has been mowed once or twice. Apply at least 1 month before onset of high air temperatures. In late summer/early fall, apply at least 1 month before anticipated first killing frost.

Apply anytime after overseeded turf has established itself successfully. Do not apply after March 15<sup>th</sup> to avoid delay in Bermudagrass green-up.

Maintain moderate soil moisture conditions before and after each application to achieve best plant growth retardation effect. A repeat application of ArmorTech PAC 223 within the same growing season may be made 8 weeks apart for growth regulation & 4 to 6 weeks apart for color, quality enhancement after the initial application. Do not apply more than 4 quarts per acre per year (2 lbs. a.i./A).

ArmorTech PAC 223 will not prevent seedhead production if used alone. A tank mixture for a spray program using a seed head control agent (Embarc®) is required when seedhead visibility is a problem. If Embarc is used for *Poa annua* seedhead control, apply ArmorTech PAC 223 at least 14 days after the Embarc application.

**Weeds, Insects and Diseases:**

If crabgrass or other annual grassy weeds have been a problem in the past, an application of an appropriate preemergence weed control product should be made before the use of ArmorTech PAC 223. Space applications of ArmorTech PAC 223 and preemergence product (Goosegrass/Crabgrass Preventer) at least 4 weeks apart.

Broadleaf weeds are not significantly affected by ArmorTech PAC 223. To control the growth of weeds, treat with an appropriate herbicide when weeds are actively growing. Carefully follow label directions.

If a weed, disease, or insect problem occurs after application of ArmorTech PAC 223, apply control product at the

recommended rate. ArmorTech PAC 223 is compatible with most existing control products. A compatibility test should be conducted with product(s) with which you do not have prior experience.

**Regulator response and Turf cultivar**

Excessive irrigation and/or nitrogen fertilization may shorten period of growth regulation. Regulator response will vary somewhat according to turf variety. For St. Augustinegrass, Bitter Blue will be the most responsive and Floratam the least responsive.

**HYBRID BERMUDAGRASS**

Sensitivity/Activity	Cultivar	Period of Growth Regulation	Period of Color Response
Medium/Good	Tifway I, II	5 - 6 weeks	6 - 8 weeks
High/Excellent	Tifgreen, Ormond	6 - 8 weeks	8 - 10 weeks

**ST. AUGUSTINEGRASS**

Sensitivity/Activity	Cultivar	Period of Growth Regulation	Period of Color Response
Low/Moderate	Floratam, Florawlawn	4 - 6 weeks	5 - 8 weeks
Medium/Good	Floratine, Raleigh, Texas, Common	6 - 7 weeks	7 - 8 weeks
High/Excellent	Bitter Blue, Seville	7 - 8 weeks	8 - 10 weeks

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**GENERAL PRECAUTIONS**

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**Do not** use on residential lawns.

**Do not** use on bermudagrass putting greens except for winter overseeding enhancement use.

**Do not** use on athletic fields under heavy traffic where maximum growth potential of turf is desired.

Applications to turf areas under trees will not affect/harm trees.

**Do not** use during periods of extreme dry or cold weather conditions, or during heavy insect or disease activity.

**Do not** apply product when soil is already saturated. Heavy rainfall or irrigation in the treated areas may cause active ingredient to move laterally on slopes and collect in low areas. These areas may undergo more severe growth control for a longer period of time.

**Do not** use on areas containing greater than 70% *Poa annua*, since discoloration of *Poa* may be unacceptable.

Delay treatment of newly-sodded or sprigged turf until grass has knitted down and rooted firmly.

Delay sprigging for at least 4 weeks and sodding at least 2 weeks after application is made.

Withhold application on large turf areas that have been thinned from winter drainage, disease, or insects until desired fill-in is achieved.

Assure that dosage rates are measured accurately since rates greater than those recommended may cause undesirable turf growth control and may discolor areas temporarily.

**Do not** use on areas to be cultivated for food or food crops or to be resown with grasses within two years of treatment.

**Do not** apply more than 4 qts. per acre per year (2 lbs. a.i./A).

**Do not** graze treated areas or harvest for forage or hay.

**Do not** apply this product through any type of irrigation equipment.

#### STORAGE AND DISPOSAL

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#### LIMITED WARRANTY AND DISCLAIMER

United Turf Alliance, LLC warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below.

Our recommendations for use of this product are based upon tests believed to be reliable. The use of this product being beyond control of the manufacturer, no guarantee, expressed or implied, is made as to the effects of such use or the results to be obtained if not used in accordance with printed directions and established safe practice. To the fullest extent permitted by law, buyer's exclusive remedy and manufacturer's or seller's exclusive liability for any and all claims, losses, damages or injuries resulting from the use or handling of this product, whether or not based in contract, negligence, strict liability in tort or otherwise shall be limited, at the manufacturer's option to replacement of, or the repayment of the purchase price for, the quantity of product with respect to which damages are claimed.

##### **Inherent Risks of Use**

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of United Turf Alliance, LLC or the seller. All such risks shall be assumed by buyer.

##### **Terms and Conditions of Use**

If terms of the Limited Warranty & Disclaimer and Inherent Risks of Use are not acceptable, return unopened package at once to the seller for a full refund of purchase price paid. Otherwise, use by the buyer or any other user constitutes acceptance of the terms under Warranty Disclaimer and Inherent Risks of Use.

Embarc<sup>®</sup> is a trademark of PBI/Gordon Corp

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