Department of Agriculture
STATE OF HAWAII

LICENSED

PERIOD 2014-2016 LIC. NO.

9836.47

# PACZOL®

Ornamental Growth Regulator

## COMPOSITION

Active Ingredient:

Paclobutrazol (±)-(R*, R*)-beta-((4-chlorophenyl)methyl)-alpha-(1,1,-dimethylethyl)-1H-1,2,4,-triazole-1-ethanol..... 0.4%

Inert Ingredients: ..... 99.6%

Total: ..... 100.0%

Contains 0.12g active ingredient per fluid ounce (4000 ppm).

EPA REG. NO. 400-515-59807 EPA EST. NO. 37429-GA-1

## KEEP OUT OF REACH OF CHILDREN

# CAUTION

| FIRST AID | |
|---|---|
| IF ON SKIN OR ON CLOTHING: | • Take off contaminated clothing.<br>• Rinse skin immediately with plenty of water for 15 to 20 minutes.<br>• Call a poison control center or doctor for immediate treatment advice. |

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also call the following telephone numbers for emergency medical treatment.

| | |
|---|---|
| MEDICAL (24 hours a day) AND PRODUCT INFORMATION | 800-356-4647 |
| TRANSPORTATION EMERGENCY (24 hours a day) (CHEMTREC) | 800-424-9300 |

004/052308

SAP#521681

Department of Agriculture
STATE OF HAWAII

986191

LICENSED

PERIOD 2011-2013 LIC. NO.

Net Contents: 1 Gallon (3.785 L)

ohp Partners with solutions

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

Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing.

## PERSONAL PROTECTIVE EQUIPMENT

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

**Applicators and Other Handlers Must Wear:** Long-sleeved shirt and long pants; chemical-resistant gloves made of any waterproof material such as Barrier Laminate or Butyl Rubber or Nitrile Rubber or Neoprene Rubber or Polyvinyl Chloride or Viton; shoes plus socks.

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

## USER SAFETY RECOMMENDATIONS

Users should:

- 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, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

## PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame.

## 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. Read all label directions carefully before use.

## 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; chemical resistant gloves made of any waterproof material such as Barrier Laminate or Butyl Rubber or Nitrile Rubber or Neoprene Rubber or Polyvinyl Chloride or Viton; shoes plus socks.

## GENERAL INFORMATION

**PACZOL**® is a plant growth regulator for use on ornamental plants grown in containers in nurseries, greenhouses, shadehouses and interiorscapes. Use of **PACZOL** effectively reduces internode elongation, resulting in more desirable compact plants. When used as directed, **PACZOL** produces no phytotoxic effects. DO NOT REUSE POTS, TRAYS, OR OTHER CONTAINERS THAT PREVIOUSLY WERE USED IN THE PRODUCTION OF A CROP WHICH WAS TREATED WITH **PACZOL**.

## MIXING INSTRUCTIONS

Be sure the sprayer is clean and not contaminated with any material. Fill the spray tank with half the required amount of water. Using the DILUTION TABLE (Table 1), determine the amount of **PACZOL** needed for the required concentration. Measure the desired volume accurately and add it to the tank. Fill tank with the remaining amount of required water. Agitate the mixture of **PACZOL** and water frequently to assure uniform distribution during application.

**Table 1**
**PACZOL DILUTION TABLE**

| PPM PACZOL DESIRED | FL. OZ. PER GALLON | ML/CC PER GALLON | PPM PACZOL DESIRED | FL. OZ. PER GALLON | ML/CC PER GALLON |
|---|---|---|---|---|---|
| 1 | 0.032 | 1.0 | 25 | 0.8 | 24.0 |
| 2 | 0.064 | 1.9 | 30 | 1.0 | 28.0 |
| 3 | 0.096 | 2.8 | 40 | 1.3 | 38.0 |
| 4 | 0.13 | 3.8 | 50 | 1.6 | 47.0 |
| 5 | 0.16 | 4.7 | 100 | 3.2 | 95.0 |
| 10 | 0.32 | 9.5 | 200 | 6.4 | 190.0 |
| 20 | 0.64 | 19.0 | | | |

## APPLICATION TECHNIQUES

Desired height control with **PACZOL** can be obtained with three different types of applications: sprays, drenches or bulb soaks.
Under certain conditions, sequential spray applications may be desirable.
Frequent agitation of the **PACZOL** solution and proper application techniques are critical in order to achieve desired results.
Be sure of your calculations, volume measurements and sprayer calibration. When in doubt, recalculate.

### 1. SPRAY APPLICATIONS

In spray applications, **PACZOL** penetrates into plant stems and is translocated to the terminal where it reduces internode elongation.
When applying a spray application, it is important that:

- adequate spray volume is used to thoroughly wet plant stems. The misting technique used for some other growth regulators, where only upper leaves are covered with a light spray, will not produce desired results with **PACZOL**;
- sprays are not applied to the point of excessive runoff into the potting media. The spray volume which drips down into the media may be desirable as it will be taken up by the roots and increase the effectiveness of **PACZOL**. However, too much runoff into the media may result in excessive height control;
- the spray technique provides thorough, consistent, uniform coverage for all plants. Failure to do so may result in non-uniform height control.

**PACZOL** may be applied at any time of the day without danger of burning leaves or causing chlorosis.
Overhead irrigation or rain 30 minutes after spray applications does not reduce the effectiveness of **PACZOL**.
Addition of wetting agents for spray applications is not necessary.

The RECOMMENDED SPRAY VOLUME for **small plants** in small containers or plug trays which are closely spaced is **1-2 qts. / 100 sq. ft.** of bench space.
For **larger plants with a well developed canopy,** a spray volume of **3 qts. / 100 sq. ft.** of bench space is recommended.

Using SEQUENTIAL APPLICATIONS may provide more uniform growth regulation and safety against over-application. In general, sequential spray applications are to be applied using 50 - 100% of the lower recommended rate. Growers in cooler climates may have to use lower rates.
With some plant species, particularly chrysanthemums, hibiscus and azaleas, individual lateral shoots will outgrow the other laterals causing non-uniform plant appearance. This results when individual laterals do not receive enough chemical when spray is applied. The use of sequential applications will reduce this problem.

## 2. DRENCH APPLICATIONS

Application of **PACZOL** to the growing media will provide good control of plant height. **PACZOL** is readily absorbed by plant roots and translocated to the terminals.
Drench applications generally provide a longer lasting, more uniform height control than spray applications, having little effect on flower size. Drench applications are very useful when applied late in the production cycle when plants have reached, or are near, the desired marketing size. Late drench applications are particularly useful on poinsettias, chrysanthemums and bulb crops.
Drench applications should be made to moist potting media. This may be achieved by watering plants the day before treatments. Drench applications to dry media will result in poor distribution.
Multiple plants growing in the same pot require a more uniform distribution of drench solution to achieve uniform height control.

**Drench Rates and Volumes:** The rates recommended for soil drench applications are based on a drench volume of 4 fl. oz. of final solution for an average 6-inch 'azalea' pot. Based on this recommendation, one gallon of solution will treat 32 - 6-inch pots. For smaller or larger pots, a suitable drench volume is enough final solution applied to achieve total run through of no more than 10%, providing that the potting media is properly moist before treatment. Table 2 may be used as guide in determining appropriate drench volumes needed for the specified pot sizes. For the grower who likes to apply **PACZOL** as a known amount of active ingredient per pot, Table 2 also shows the amount of active ingredient found in a specific volume at a known concentration.

**Table 2**
**DRENCH VOLUME GUIDELINES AND CONVERSIONS**

| Pot Diameter (inches) | Drench Volume (fl. oz. / pot) | mg.ai. PACZOL / Pot | | | |
|---|---|---|---|---|---|
| | | 1 PPM | 2 PPM | 3 PPM | 4 PPM |
| 4" | 2 | 0.063 | 0.125 | 0.188 | 0.25 |
| 5" | 3 | 0.094 | 0.188 | 0.282 | 0.375 |
| 6" | 4 | 0.125 | 0.25 | 0.375 | 0.50 |
| 8" | 10 | 0.313 | 0.625 | 0.938 | 1.25 |
| 10" | 25 | 0.783 | 1.56 | 2.35 | 3.125 |
| 10" hanging basket | 15 | 0.470 | 0.939 | 1.41 | 1.878 |
| 12" | 40 | 1.25 | 2.5 | 3.75 | 5.0 |

NOTE: The recommended drench volumes are based on the soil capacity of a common 6-inch 'azalea' type pot. Extrapolating the recommendation for this 6-inch 'azalea' type pot to smaller or larger containers may not be correct for the total drench volume but should only be used as a guideline. The user must determine the appropriate rate and drench volume needed to achieve the desired result, based on both pot size and potting media used.

**PACZOL** can also be applied as a 'drench' through sub-irrigation in saucers, benches or flooded floors. Using this method, the solution is applied to the media through the bottom of the container. Because most plant roots grow in the lower half of the container, this sub-application of **PACZOL** delivers the chemical to the plant more efficiently than the typical drench application, and therefore requires the use of lower rates than the typical drench. The optimum rates for a one-time sub-application is typically about 50-75% of the rate used in a typical drench. The optimum rate for continuous application in the irrigation water is about 10-33% of the rate needed for a one-time sub-irrigation application.

### 3. PREPLANT BULB SOAKS

Soaking of bulbs in solutions of **PACZOL** is also a very effective way to attain height control. The rates used and length of soaking time will vary, depending on the species. See the section on BULB CROPS for specific recommendations.

## FACTORS AFFECTING PLANT RESPONSE TO PACZOL

IN ADDITION TO PROPER APPLICATION, THERE ARE SEVERAL ENVIRONMENTAL AND CULTURAL FACTORS WHICH CAN AFFECT A PLANT'S RESPONSE TO TREATMENT WITH **PACZOL**. These factors may cause a variation in the amount of **PACZOL** needed to provide desired plant height .

**Cultural practices** may affect the plant's response to **PACZOL**. Plants which are grown at close spacing or in smaller pots and using high water and fertilizer levels may require an increase in the amount of **PACZOL** needed.

For drench applications, plants grown in media with pine bark or a high organic content may require higher rates of **PACZOL** than those grown in media without pine bark or with a low organic content.

**Different varieties or cultivars** within a given plant species may require a higher or lower rate of **PACZOL**. The taller, more vigorous varieties generally require more chemical than do the naturally short, less vigorous varieties. Growers should consult with plant and seed suppliers for vigor and other growth characteristics for newly released varieties.

**Temperature** can be the overriding factor in determining amount of **PACZOL** needed. Stem elongation increases with increased temperatures. Growers in warm climates need to use higher rates and/or more applications compared to those in cooler climates. The amount of **PACZOL** needed and number of applications may also vary depending on the time of year, with higher rates and/or more applications needed during warmer months.

## DETERMINING OPTIMUM RATES

Optimum **PACZOL** rates will vary with different growers and will depend on their individual desired final plant height, growing conditions, and application techniques. Different varieties or cultivars of the same species may respond differently to **PACZOL**. **Before PACZOL is applied to large numbers of plants, growers should conduct trials with small numbers of plants using the recommended rates to determine the optimum rates for their situations.**

**The rates recommended on this label are rate ranges and should be used only as guidelines. Do not exceed the maximum recommended rate.**

The user should conduct trials on a small number of plants, adjusting the rate of **PACZOL** to achieve the desired height and length of control. For preplant bulb soak trials, it may be necessary to adjust both the rate and length of soak time in order to achieve desired results.

For plant species listed on the label, the user should run initial trials using the lowest recommended rates.

For plant species **not** specifically listed on the label, the user should run initial trials using the rates recommended in Table 3.

**Table 3**
**RECOMMENDED TRIAL RATES (PPM) BY GENERAL PLANT TYPE***

| Plant Type | Spray | Drench | Bulb Soak |
|---|---|---|---|
| Bedding Plants | 30 | 1 | N/A |
| Bedding Plant Plugs | 5 | NR | N/A |
| Flowering / Foliage Plants (Annual or perennial) | | | |
| - Herbaceous Species | 30 | 1 | N/A |
| - Woody Species | 50 | 2 | N/A |
| Woody Landscape Plants | 100 | 4 | N/A |
| Bulb Crops | 100 | 10 | 20 (@ 15 min.) |

NR = Use is not recommended N/A = Use is not applicable

*The recommended trial rates are based on information developed primarily in the Sunbelt Region. Growers in regions north of the Sunbelt should run initial tests using half the RECOMMENDED TRIAL RATES listed in Table 3.

## USE AND RATE RECOMMENDATIONS BY CROP

**PACZOL** is effective in controlling height of most ornamental crops. Be sure to read and fully understand the section on DETERMINING OPTIMUM RATES before applying to large numbers of plants.

### A. AZALEAS (FLORIST)

**PACZOL** can be used to control plant height, reduce bypass shoot elongation and promote flower bud initiation.

**Spray applications** are effective in the rate range of 100 to 200 PPM.

**Drench applications** are effective in the rate range of 5 to 15 PPM.

To control plant height and promote flower bud initiation, applications should begin when new growth, following final shaping, is $1^1/_2$ to 2 inches long.

To reduce bypass shoot development, applications should be made after bud set when bypass shoots are barely visible, or about 5 to 7 weeks prior to cooling.

### B. BEDDING PLANTS

**Spray applications** of **PACZOL** will provide height control of most bedding plants at a wide rate range of 5 to 90 PPM.

The rate ranges for some specific bedding plants are:

| Plant | Rate Range (PPM) | Plant | Rate Range (PPM) |
|---|---|---|---|
| Ageratum | 15 - 45 | Marigold (African)* | 30 - 60 |
| Alyssum | 40 - 60 | Marigold (French) | 15 - 30 |
| Celosia | 15 - 45 | Pansy | 5 - 15 |
| Coleus | 15 - 30 | Petunia | 15 - 45 |
| Dahlia | 15 - 45 | Salvia | 20 - 60 |
| Dianthus | 20 - 60 | Snapdragon* | 30 - 90 |
| Impatiens (Standard) | 10 - 45 | Verbena | 15 - 30 |
| Impatiens (New Guinea) | 2.5 - 15 | Zinnia | 15 - 45 |

***Apply at an early stage of plant growth with good stem coverage, especially for vigorous varieties.**

- **Do not use on fibrous begonias** as they are very sensitive to **PACZOL**. Overly stunted plants can result if they receive spray drift from applications made to surrounding species.
- **Do not use on annual Vinca (periwinkle)** as **PACZOL** may cause spotting of foliage, especially at high temperatures.

For bedding plants not specifically listed above, the user should determine optimum rates starting with a rate of 30 PPM in the Sunbelt Region and 15 PPM in the Northern Belt Region. Time of application should begin when new growth in height or width reaches 2 inches or when plants reach the desired size to hold them at a marketable stage.

**Media sprays** can be used to control the height of vigorous plugs, such as impatiens and salvia, that show excessive elongation soon after transplant. Rate recommendations for applications made just prior to transplant are in the range of 20 - 60 ppm, applied in a volume of 2 qts/100 sq. ft.

Late application timings and/or excessive rates may slow the growth of plants when transplanted. To avoid this, apply multiple applications at $^1/_4$ - $^1/_2$ the optimum rate.

High rates of **PACZOL** may delay flowering, especially of impatiens and petunia.

**Drench applications** are effective on bedding plants, but are recommended only for those plants in containers 6 inches or larger. The user should determine optimum rates, starting at 1 PPM.

### C. BEDDING PLANT PLUGS

**Spray applications** of **PACZOL** can also be used to effectively control height of bedding plant plugs. The recommended rate range of 1 to 20 PPM is much lower than the rate range for older bedding plants.

Rate ranges for some specific bedding plant plugs are:

| Plant | Rate Range (PPM) | Plant | Rate Range (PPM) |
|---|---|---|---|
| Ageratum | 5 - 10 | Marigold (African) | 10 - 20 |
| Alyssum | 10 - 20 | Marigold (French) | 5 - 10 |
| Celosia | 5 - 10 | Pansy | 1 - 5 |
| Coleus | 5 - 10 | Petunia | 5 - 10 |
| Dahlia | 5 - 10 | Salvia | 5 - 10 |
| Dianthus | 10 - 20 | Snapdragon | 10 - 20 |
| Impatiens (Standard) | 0.5 - 10 | Verbena | 5 - 10 |
| Impatiens (New Guinea) | 0.25 - 5 | Zinnia | 5 - 10 |

For bedding plant plugs not specifically listed above, the user should determine optimum rates starting with a rate of 5 ppm. Timing of application should normally begin at the 1 to 2 true leaf stage.

**Media sprays** can be used to control the height of vigorous plugs, such as marigold and snapdragon, that show excessive elongation soon after emergence. Rate recommendations for applications made at the time of, or within one week after seeding, are in the range of 5 - 30 ppm, applied in a volume of 2 qts./100 sq. ft.

**Drench applications** are not recommended for bedding plant plugs due to the sensitivity and extremely low rates needed.

For all uses of **PACZOL** on plugs, determining optimum rates should include an evaluation of the crop performance after transplanting to insure that treatment does not excessively reduce growth during the finishing stage or in the landscape.

## D. BULB CROPS

Height control can be achieved on a variety of bulb crops by any of the three application types.

**Spray applications,** although moderately effective, are the least desirable method for controlling height. Sequential applications are recommended in order to achieve desired uniformity. Applications should begin when plants are 2 to 4 inches tall.

**Drench applications** are very effective in the rate range of 8 to 160 PPM. Optimum rates vary widely, depending on species. Timing of application will also vary, depending on species. For bulbs which require a cold period, **PACZOL** is generally applied 1 to 5 days after removal from the cooler. For most other bulb types, application should be made when newly emerged shoots are 1 to 2 inches tall.

**Preplant bulb soaks** are also very effective. Effective rates for most species are in the range of 5 to 25 PPM, with a soaking time of 5 - 15 minutes. In general, lower use rates will require longer soaking times.

The following table gives recommended rate ranges and length of soaking time for a variety of bulb species:

| Bulb Type | Spray Rate (PPM) | Drench Rate (PPM) | Preplant Bulb Soak Rate (PPM) / Soak Time |
|---|---|---|---|
| Amaryllis | ND | 200 | 100 / 1 hr. |
| Caladium | 100 - 200 | 2 - 16 | 60 / 30 min. |
| Calla Lily | ND | 5 - 15 | 20 / 15 min. |
| Daffodil | ND | 20 - 40 | 80 / 1 hr. |
| Dahlia | ND | 10 - 40 | > 40 / 20 min. |
| Freesia | ND | 2 - 4 | 100 - 300 / 1 hr. |
| Hybrid Lily (Asiatic, Oriental, LA) | 200 - 500 | 4 - 30 | 5 - 30 / 15 min. |
| Montbretia | ND | ND | 20 - 30 / 15 min. |
| Tulip | ND | 5 - 40 | 2 - 5 / 1 hr. |

ND = Rates for this particular use have not been determined. For these applications the user should run trials using the rates recommended in Table 3.

For species not specifically listed, trials should be conducted using rates outlined in the section on DETERMINING OPTIMUM RATES.

## E. CHRYSANTHEMUMS (POT)

**PACZOL** is effective in controlling height of pot chrysanthemums when applied as either a spray or drench.

**Spray Applications** are effective at rates of 50 to 200 PPM. Applications should begin when axillary shoots are 2 to 3 inches long. **PACZOL** can be applied earlier to vigorous varieties if additional control is desired.
Sequential applications of lower rates generally provide more uniformly shaped plants than single spray applications.

**Drench applications** of **PACZOL** are effective at recommended rates of 1 to 4 PPM. Application timing during early production is when axillary shoots are 2 to 3 inches long.

Seasonably late applications are sometimes required at the time of disbud to prevent late stretch. Unlike spray applications, the drench can be safely applied with little to no effect on flowering.

Because pot chrysanthemums are usually planted with multiple cuttings per pot, uniform application is critical to achieving desired results.

## F. FLOWERING PLANTS / FOLIAGE PLANTS (not specifically listed)

**PACZOL** is effective as a spray or drench application in controlling height on a wide variety of other flowering plants and foliage plants. It can be used as either a holding agent to stop growth (e.g., interiorscape) or a toning agent to slow growth (e.g. when pot crops or hanging baskets are at or near marketable size). In general, herbaceous species will require lower rates than woody species. Trials should be conducted using rates outlined in the section on DETERMINING OPTIMUM RATES.

## G. GERANIUMS

Geraniums are particularly sensitive to **PACZOL**. The user must determine optimum rates before applying to large numbers of plants.

**Spray applications** of **PACZOL** at recommended rates of 10 to 30 PPM will effectively control growth of geraniums. Early applications may require lower rates to avoid overstunting. Time of application for zonal geraniums is when growth is $1^1/_2$ to 2 inches long; for seed geraniums, 2 to 4 weeks after transplanting or when needed.
**PACZOL** will reduce late stretch when applied as the flower stems begin to elongate.

**Drench applications,** although effective, should be made with caution due to the extreme sensitivity of geraniums to **PACZOL**. Trials should be conducted to determine optimum rates.

## H. HIBISCUS

**Spray applications** of **PACZOL** at 30 to 150 PPM will effectively reduce shoot elongation. Application should be made when laterals are 1 to 4 inches long, depending on desired final plant size. Single applications control lateral growth for 3 to 6 weeks. Sequential applications may provide more uniform plant shape.
**PACZOL** can be applied 1 to 2 weeks prior to flowering to prevent late stretch.

**Drench applications** will also effectively reduce shoot elongation. Trials should be conducted using recommended rates outlined in the section on DETERMINING OPTIMUM RATES.

## I. PERENNIALS

Perennial plants make up a wide variety of plant forms, many of which grow very tall. Others, which may have naturally low growing foliage, will develop flowers on tall spikes which, when in flower, may be difficult to ship or display. The use of **PACZOL** to control height of large, unruly perennial species has become an effective strategy to increase their attractiveness and marketability.

**Spray applications** of **PACZOL** are effective on a wide variety of perennial plants in the rate range of 30 - 200 ppm.

**Drench applications** are effective in the 1 - 30 ppm range, and are useful to hold or tone plants when they are at or near a marketable size.

Recommended rates for some perennial plants are:

| Plant | Spray Rate (PPM) | Drench Rate (PPM) |
|---|---|---|
| Alcea rosea | 30 - 50 | 1 - 2 |
| Asclepias | 30 - 60 | ND |
| Chrysanthemum | 50 - 200 | 1 - 4 |
| Coreopsis | 80 - 100 | 5 - 10 |
| Delphinium | 30 - 60 | ND |
| Digitalis | 80 - 160 | 2 - 4 |
| Eupatorium | > 240 | 8 - 10 |
| Gaura | > 30 | 30 |
| Jacobinia (Pink) | 5 - 10 | 0.5 - 1 |
| Monarda | 60 - 160 | > 4 |
| Salvia | 40 - 60 | ND |
| Stokesia | 40 - 80 | ND |
| Verbena | 120 - 160 | > 3 |
| Veronica | 20 - 40 | ND |

> = Greater than.

ND = Rates for this particular use have not been determined. For these applications the user should run trials using the rates recommended in Table 3.

For species not specifically listed, trials should be conducted using rates outlined in the section on DETERMINING OPTIMUM RATES.

## J. POINSETTIAS

**Spray Applications** of **PACZOL** will effectively control height of poinsettias. Recommended rates are 10 to 30 PPM for most areas of the U.S. In southern Florida, higher rates of 15 to 45 PPM are recommended.

Single applications may be made using the higher recommended rates. However, sequential applications initially using lower rates will provide better safety against overly retarded plants. For the subsequent applications use 50 to 100% of the initial rate, depending on plant vigor at the time of reapplication.

Applications to slower growing varieties in cool climates should begin when axillary shoots are 2 to 3 inches long. For vigorous growing varieties in warm climates, applications should begin when axillary shoots are $1^1/_2$ to 3 inches long.

Sequential applications may be applied 1 to 3 times, at 7 to 14-day intervals, depending on plant vigor/growth.

Seasonably late applications of **PACZOL** will reduce plant height, but, like most PGR's, may also reduce bract size. To prevent this, **PACZOL** should not be applied after initiation of short days. As a guide, do not apply **PACZOL** sprays after October 1 for areas outside of Florida, or after October 25 in Florida.

**Drench applications** are also an effective means of height control, and are most commonly used for late season application to plants which have initiated bracts or have reached or are near their desired marketing size. Recommended rates are in the range of 0.25 to 3 PPM, based on drench volume of 4 fl. oz. / 6-inch pot.

Application during early production should be made when axillary shoots are $1\ ^1/_2$ to 2 inches long.

Seasonably late applications are sometimes required after initiation of short days to prevent late stretch and, unlike spray applications, can be safely applied with little to no effect on bract size.

NOTE: Optimum **PACZOL** rates and timings for both spray and drench applications to poinsettias will vary depending on the variety.

## K. WOODY PLANTS

**PACZOL** is effective in controlling height and initiating flower bud formation on a wide variety of woody plants using both spray or drench applications.

Rate ranges for different species vary greatly. Trials should be conducted using rates outlined in the section on DETERMINING OPTIMUM RATES.

Examples of woody plants on which the product can be applied are:

| | | |
|---|---|---|
| Azalea | Hibiscus | Magnolia |
| Bougainvillea | Hydrangea | Photinia |
| Camellia | Ilex (Holly) | Pine |
| Cotoneaster | Juniper | Rhododendron |
| Euonymus | Kalmia | Rose |
| | Ligustrum | |

## USE DIRECTIONS FOR CHEMIGATION

In addition to the above use rates and recommendations, the following precautions must be observed when using this product in any type of irrigation system.

Apply this product only through the following systems:

1) Overhead sprinklers such as impact, micro-sprinklers or booms
2) Micro-irrigation such as spaghetti tube or drip emitters
3) Mist-type irrigation such as fog systems
4) Hand-held calibrated equipment such as the hand-held wand with injector
5) Sub-irrigation, such as ebb & flow and flooded floor systems, or through individual saucers.

Do not apply this product through any other type of irrigation system. Crop injury or lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water. If you have any questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts. Do not connect an irrigation system, (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label prescribed safety devices for public water systems are in place. A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

### Sprinkler Chemigation

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent the flow of fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

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

Fill the supply tank with the desired amount of water. Then add the amount of **PACZOL** required in order to achieve the final solution rate recommended for the specific crop to be treated. Agitate the mixture of **PACZOL** and water frequently during the chemigation period to assure a uniform distribution throughout the system. Apply **PACZOL** continuously for the duration of the water application but do not exceed recommended rates and volumes as outlined on the product label. For overhead applications to the foliage and stems, apply at a volume of 1 to 2 qts. per 100 sq. ft. for plugs and plants with small canopies. Volumes of 2 to 3 qts. per 100 sq. ft. may be necessary for plants with large canopies. For applications to the soil, apply at the volume of 4 fl. oz. per 6 inch pot.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days of the year.

Chemigation systems connected to public water systems must contain a functional, reduced pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water systems should be discharged into a reservoir tank prior to pesticide introduction.

There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where the pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

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

## STORAGE AND DISPOSAL

**PROHIBITIONS:** Do not reuse empty containers. Do not contaminate water, food or feed by storage or disposal.

**PESTICIDE STORAGE:** Keep container closed when not in use. 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:** Wastes resulting from the use of this product may be disposed of on-site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:**

**Nonrefillable Container**

**Plastic Containers:** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Then offer container for recycling, reconditioning, or puncture and dispose of in a sanitary landfill, by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**Triple rinse as follows:** Empty the remaining contents into application 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.

**Recycling:** Once cleaned, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or manufacturer, or contact the Ag Container Recycling Council (ACRC) at 1-877-952-2272 (toll free) or www.acrecycle.org.

**IMPORTANT:** Read the entire Directions For Use and the Conditions of Sale and Warranty before using this product.

**IMPORTANT NOTICE**—Seller warrants that this product conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with the directions and instructions specified on the label under normal conditions of use, but neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to seller, and buyer assumes the risk of any such use.

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Made in U.S.A.

Manufactured for:
OHP, Inc.
P.O. Box 230
Mainland, PA 19451
(800) 356-4647

ESL052308 REV090408
OHP986191

ohp Partners with solutions

# PACZOL®

Ornamental Growth Regulator

## COMPOSITION

Active Ingredient:

Paclobutrazol (±)-(R*, R*)-beta-((4-chlorophenyl)methyl)-alpha-(1,1,-dimethylethyl)-1H-1,2,4,-triazole-1-ethanol..... 0.4%

Inert Ingredients: ..... 99.6%

Total: ..... 100.0%

Contains 0.12g active ingredient per fluid ounce (4000 ppm).

EPA REG. NO. 400-515-59807 EPA EST. NO. 37429-GA-1

## KEEP OUT OF REACH OF CHILDREN

# CAUTION

## FIRST AID

| | |
|---|---|
| **IF ON SKIN OR ON CLOTHING:** | • **Take off contaminated clothing.**<br>• **Rinse skin immediately with plenty of water for 15 to 20 minutes.**<br>• **Call a poison control center or doctor for immediate treatment advice.** |

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also call the following telephone numbers for emergency medical treatment.

**MEDICAL (24 hours a day) AND PRODUCT INFORMATION 800-356-4647**
**TRANSPORTATION EMERGENCY (24 hours a day) (CHEMTREC) 800-424-9300**

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for info on this standard.

**Additional Precautionary Statements and Full Directions for Use are in the booklet attached to the container.** IF BOOKLET IS MISSING, contact OHP, or authorized dealer.

004/052308
SAP#521681
ESL052308 REV090408
OHP986191

Net Contents: **1 Gallon (3.785 L)**

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