



BIFENAZATE

GROUP

20D

ACARICIDE

MITICIDE / INSECTICIDE

ACTIVE INGREDIENT:bifenazate: hydrazine carboxylic acid, 2-(4-methoxy-
[1,1'-biphenyl]-3-yl) 1-methylethyl ester.....

43.2%

OTHER INGREDIENTS:

56.8%

TOTAL

100.0%

Contains 4 pounds active ingredient bifenazate per gallon

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

SEE INSIDE BOOKLET FOR ADDITIONAL PRECAUTIONARY STATEMENTS AND DIRECTIONS FOR USE

For Chemical Spill, Leak, Fire, or Exposure, Call CHEMTREC (800) 424-9300

For Medical Emergencies Only, Call (877) 325-1840

EPA Reg. No. 228-740

Net Contents**16 Fl. Oz.
(473 mL)**Manufactured for
Nufarm Americas Inc.
11901 S. Austin Avenue
Alsip, IL 60803

1 91662 01400 6



Nufarm

Grow a better tomorrow.

FIRST AID

IF SWALLOWED:

- Call 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 by a poison control center or doctor.
- Do not give anything to an unconscious person.

IF INHALED:

- Move the person to fresh air.
- If the 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 further treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-325-1840 for emergency medical treatment information.

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION

Harmful if swallowed. Harmful if inhaled. Avoid breathing spray mist. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and Other Handlers Must Wear:

- Long-sleeved shirt and long pants,
- Shoes plus socks, and
- For mixing and loading activities when not using a closed system, wear an apron and chemical-resistant gloves made of: barrier laminate, polyethylene, butyl rubber (≥ 14 mils), nitrile rubber (≥ 14 mils), neoprene rubber (≥ 14 mils), natural rubber (≥ 14 mils), polyvinyl chloride (≥ 14 mils), or Viton (≥ 14 mils).

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:

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

ENVIRONMENTAL HAZARDS

This pesticide is toxic to birds, estuarine/marine invertebrates and fish. 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 when disposing of equipment wash waters or rinsate. This product is moderately toxic to bees and other pollinating insects exposed to direct treatment or to residues in/on blooming crops or weeds. Protect pollinating insects by following label directions intended to minimize drift and to reduce pesticide risk to these organisms. Do not apply this product while bees are foraging the treatment area.

PHYSICAL OR CHEMICAL HAZARDS

Do not use or store near heat or open flame. Do not mix or allow to come into contact with oxidizing agents. Hazardous chemical reaction may occur.

DIRECTIONS FOR USE

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

Do not apply this product through any type of irrigation system.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries and greenhouses. Keep unprotected persons out of treated areas until sprays have dried.

USE INFORMATION

ENGULF™ may be applied to ornamental foliage for knockdown and residual control of mites on ornamental plants (including annuals, bulbs, ornamental bedding plants, foliage and flowering plants, trees, perennials, [deciduous and evergreen trees] and shrubs), indicated backyard fruit and nut trees that will not bear fruit for at least 12 months. The plants may be grown in the ground or in pots.

ENGULF may only be applied to the above listed plants around residences, public, commercial and industrial areas; interior and exterior landscaping; recreational sites including golf courses, parks, athletic fields, and campgrounds; and rights-of-way and other easement uses.

ENGULF works most effectively on mites that are motile, but also has ovicidal activity against the *Tetranychus* spp. mites (i.e., Spider Mites) and is especially effective against grass mites, red mites and spider mites. Common mite species controlled by ENGULF include:

Bamboo Spider Mite

Schizotetranychus celarius (Banks)

Citrus Red Mite

Panonychus citri (McGregor)

Clover Mite

Bryobia praetiosa (Koch)

European Red Mite

Panonychus ulmi (Koch)

Lewis Mite

Eotetranychus lewisi

Banks grass

Oligonychus pratensis

Brown almond

Bryobia rubrioculus

Six spotted

Eotetranychus sexmaculatus

Pacific Mite

Tetranychus pacificus (McGregor)

Southern Red Mite

Oligonychus ilcis (McGregor)

Spruce Spider Mite

Oligonychus ununguis (Jacobi)

Strawberry Mite

Tetranychus turkestanii

Two-Spotted Spider Mite

Tetranychus urticae (Koch)

McDaniel

Tetranychus mcdanieli (McGregor)

Pecan leaf scorch

Eotetranychus hicoriae

Willamette

Eotetranychus willamettei

NOTE: ENGULF™ is not effective in controlling rust mites, broad, Cyclamen or flat mites.

Because ENGULF™ is not a systemic insecticide, thorough coverage of both the upper and lower surfaces of the leaves, as well as any fruit present, is required. When used as directed, ENGULF is useful in resistance management and IPM programs due to its selective nature that minimizes impacts to beneficial insects.

MIXING INSTRUCTIONS

To prepare ENGULF for application:

- 1) Fill the tank with 1/2 the required amount of water;
- 2) Add the specified amount of ENGULF;
- 3) Begin agitation to completely disperse the product; and,
- 4) Add the remaining water required for the tank mix and, if possible, maintain agitation while applying.

Because the stability of ENGULF can be negatively impacted in a high-temperature / high-pH situation, maintain the spray mixture between pH 5.5 – 6.5.

Tank-Mixtures with ENGULF™

ENGULF may be tank-mixed with other insecticides if broad-spectrum control is necessary. When tank-mixing with other products, conduct a limited trial to determine the compatibility of the tank-mix partners prior to extensive use. Tank mixtures are only permitted in States where all of the pesticide products used as tank-mix partners are registered. 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.

USE RATES AND APPLICATION INFORMATION

Apply as soon as mites appear. ENGULF provides residual control for up to 28 days. Within the range of rates specified in the next paragraph, use the lower rates when mite pressure is low or for preventative applications; and use the higher rates when mite pressure is severe or for extended residual control.

Mix 2-4 fluid ounces of ENGULF™ per 100 gallons of water (1/8 – 1/4 teaspoon per gallon of water). Apply 1-4 quarts of the mixture per 100 square feet (100-400 gallons per acre) to the foliage using ground spray equipment (including air blast, compressed air, ground boom, hose-end and hydraulic sprayers). The spray volume used is dependent on the size of the plants being treated, with larger plants requiring greater spray volumes.

Coverage of ornamentals with hard-to-wet foliage may be improved by using a wetting or spreading adjuvant to the spray mixture [such as Silwet 77® or Sylgard 309®]. Follow individual product instructions for adjuvant use. As with any tank mixture, the compatibility and safety of any adjuvants should be tested in a small-scale trial prior to widespread use.

USE RESTRICTIONS:

- Do NOT apply ENGULF more than two times per calendar year.
- Do NOT apply more than 16 fluid ounces of ENGULF per acre per calendar year.
- Do NOT apply ENGULF by aerial application.

SPRAY DRIFT

Ground Boom Applications:

- Apply with the nozzle height recommended by the manufacturer, but no more than 4 feet above the ground or crop canopy.
- Applicators are required to use fine or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 10 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.

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

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, the boom should remain level with the crop canopy and have minimal bounce.

SHIELDED SPRAYERS

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

TEMPERATURE AND HUMIDITY

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

TEMPERATURE INVERSIONS

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.

WIND

Drift potential generally increases 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.

RESISTANCE MANAGEMENT

For resistance management, ENGULF™ contains a Group 20D acaricide. Any insect/mite population may contain individuals naturally resistant to ENGULF or other Group 20D acaricides. The resistant individuals may dominate the insect/mite population if this group of acaricides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed. To delay acaricide resistance, take the following steps:

- Rotate the use of ENGULF™ or other Group 20D acaracides within a growing season, or among growing seasons, with different groups that control the same pests. Avoid application of more than 24 fl. oz./A and consecutive sprays of ENGULF or other insecticides in the same group in a season.
- Use tank mixtures with insecticides/acaracides from a different group that are equally effective on the target pest when such use is permitted. Do not rely on the same mixture repeatedly for the same pest population. Consider any known cross-resistance issues (for the targeted pests) between the individual components of a mixture. In addition, consider the following recommendations provided by the Insecticide Resistance Action Committee (IRAC):
 - o Individual insecticides selected for use in mixtures should be highly effective and be applied at the rates at which they are individually registered for use against the target species.
 - o Mixtures with components having the same IRAC mode of action classification are not recommended for insect resistance management.
 - o When using mixtures, consider any known cross-resistance issues between the individual components for the targeted pest(s).
 - o Mixtures become less effective if resistance is already developing to one or both active ingredients, but they may still provide pest management benefits.

- o The insect resistance management benefits of an insecticide mixture are greatest if the two components have similar periods of residual insecticide activity. Mixtures of insecticides with unequal periods of residual insecticide activity may offer an insect resistance management benefit only for the period where both insecticides are active.
- Because of its selectivity, ENGULF™ can be used in conjunction with most biological control organisms available for mite control. ENGULF, when used as directed, does not adversely affect populations of beneficial/predaceous mites and insects including:

Common lacewing (*Chrysopa carnea*)

Insidious flower bug (*Orius insidiosus*)

Predatory mite (*Amblyseius fallacis*)

Predatory mite (*Typhlodromus pyri*)

Predatory mite (*Zetzellia mali*)

Predatory mite (*Phytoseiulus persimilis*)

Seven-spotted lady beetle (*Coccinella septempunctata*)

Six-spotted thrips (*Scolothrips sexmaculatus*)

Spider mite destroyer (*Stethorus punctum*)

Western flower thrips (*Frankliniella occidentalis*)

Western predatory mite (*Typhlodromus occidentalis*)

The use of these organisms in conjunction with ENGULF is encouraged as a means of reducing the number of chemical applications.

- Adopt an integrated pest management program for insecticide/ acaricides use that includes scouting, uses historical information related to pesticide use, crop rotation, record keeping, and which contains cultural, biological and other chemical control practices.
- Monitor after application for unexpected target pest survival. If the level of survival suggests the presence of resistance, consult with your local university specialist or certified pest control advisor.
- Contact your local extension specialist or certified crop advisors for any additional pest resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance contact Nufarm Americas, Inc. at 919-379-2510

PLANT TOLERANCE

It is not possible for the manufacturer or seller to determine safety for all varieties of ornamental plants, tank-mix combinations and/ or sequential pesticide treatments. *It is required that the applicator determine safe use by testing the exact tank mix desired on the ornamental varieties present by conducting a small-scale test prior to widespread use. The end user assumes responsibility for any and all risks or damage caused by application of ENGULF™ in a manner inconsistent with its labeling.*

Backyard Fruit and Nut Trees

ENGULF™ may be used on listed fruit and nut trees found in residential [home/backyard] sites. Not for agricultural production.

- For bearing fruit and nut trees, use the following application rates. (For a list of insects controlled see the table in the Ornamental section).

Site	Application Rate fl. oz./1000 sq. ft. (lbs. ai/1000 sq. ft.)	Total number of sprays per calendar year	Minimum days between application
Avocado	0.275-0.367 fl. oz. (0.0086-0.0115 lbs. ai)	2 (maximum 0.0230 lbs. ai/1000 sq. ft.)	21
Pome Fruits (Apple, Crabapple, Loquat, Pear, Quince)		1 (maximum 0.0115 lbs. ai/1000 sq. ft.)	N/A
Stone Fruit (Apricot, Cherry, Nectarine, Peach, Plum, Prune)			
Tree Nuts (Almond, Cashew, Pecans, Pistachios, Walnut)	0.275-0.551 fl. oz. (0.0086-0.0172 lbs. ai)	1 (maximum 0.0172 lbs. ai/1000 sq. ft.)	
Tropical Fruit (Papaya, Mango, Guava)	0.275-0.367 fl. oz. (0.0086-0.0115 lbs. ai)	2 (maximum 0.0230 lbs. ai/1000 sq. ft.)	21

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE: Store in a dry location.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING:

Non-refillable 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 $\frac{1}{4}$ full with water and recap. Shake container 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 container for recycling, if available, or puncture and dispose of container in a sanitary landfill, or by incineration.

WARRANTY DISCLAIMER

The directions for use of this product must be followed carefully. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, (1) THE GOODS DELIVERED TO YOU ARE FURNISHED "AS IS" BY MANUFACTURER OR SELLER AND (2) MANUFACTURER AND SELLER MAKE NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND TO BUYER OR USER, EITHER EXPRESS OR IMPLIED, OR BY USAGE OF TRADE, STATUTORY OR OTHERWISE,

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TOTAL 100.0%

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PULL HERE TO OPEN ▲

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