

Pyrethrum: The Best Choice

Installing and using a misting system on a property requires making decisions regarding the type of insect control products to use, and how to use them responsibly and most effectively. The most commonly used misting system insect control products rely on pyrethrum (also referred to as pyrethrins), a botanical extract from a chrysanthemum-like flower *Tanacetum cinerariaefolium*. Pyrethrum has several characteristics that make it an ideal choice for use in misting systems.

-  **Pyrethrum is fast acting:** it quickly knocks down and kills mosquitoes, flies and other nuisance pests.
-  **Pyrethrum quickly breaks down** in sunlight, leaving no residues.
-  **Pyrethrum irritates or excites insects,** increasing probability of exposure to the mist solution.

Misting Concentrate Phytotoxicity

The phytotoxicity (harmful effect on plants) of VamPyre® Misting Concentrate and Riptide® Waterbased Pyrethrin ULV were tested on several common ornamental plants including Formosa Azalea, Dwarf Youpon, Japanese Boxwood, Tam Juniper, Mandy Crape Myrtle, and Queen Elizabeth Rose. The resulting data indicate that there would not be phytotoxicity if the products were applied according to label directions. Adverse climatic conditions, water purity, plant vigor and the application of foliar fertilizers, fungicides or other insecticides could influence plant health.



Tanacetum cinerariaefolium, a chrysanthemum-like flower is harvested for the botanical extract pyrethrum.

Best Practices When Using Pyrethrum Products

Test for proper pH balance

Test your water to ensure the pH of the misting solution is in the 5.5 to 7.0 range. If the solution is outside that pH range, pyrethrum will degrade, and performance will be reduced.

Avoid sun and heat

Place the misting system holding tank out of direct sunlight. Pyrethrum degrades at high temperatures. Cover the tank with a light-colored or reflective cover to minimize solar heating of the solution.

Use soft water

Use soft water, or condition the water using a softening agent to sequester hard water ions, which can tie up pyrethrum.

Keep things clean

Be sure to clean the tank between refills, or use an anti-microbial to prevent the development of bacteria or other natural organisms that will break down the pyrethrum. Do not use compounds which could alter the solution pH out of the 5.5 to 7.0 range.

Monitor misting system output

Check and clean misting system nozzles and filters to be sure you are getting the particle size and distribution necessary to achieve good coverage.

Apply during active periods

Set the system timer to treat when target insects are most active, such as dawn and dusk.

Display proper labels

Make sure that a waterproof envelope with the product label is securely attached to the outside of the residential misting tank.

Follow guidelines

Always follow system manufacturer's recommendations regarding set up and maintenance. Follow insecticide product label and all Federal, State and Local regulations relating to installation and use of misting systems and the insect control products used with them.



Pyrethrum Products for Misting Systems

To learn more visit www.mgkpro.com,
call **1-866-MGK-4PRO** (1-866-645-4776)
or send an e-mail to brands@mgk.com.

RIPTIDE
Waterbased Pyrethrin ULV

VAMPYRE
Misting Concentrate



MGK misting products are made specifically to work with professional misting systems to effectively kill mosquitoes, flies and other flying insect pests.



Riptide Waterbased Pyrethrin ULV is specially designed to deliver fast knockdown and kill of mosquitoes.

- Riptide has an **optimized ratio** of pyrethrum and synergist (1:5)
- Riptide's polymeric water-based technology is not harmful to landscape plants
- Riptide is designed for stability in fixed systems
- Riptide is economical and convenient



VamPyre Misting Concentrate is a water-based microemulsion designed to provide unparalleled long-term stability in a water dilution.

- VamPyre features the **highest performing ratio** of pyrethrum to synergist (1:10)
- VamPyre's superior water-based formulation technology is not harmful to landscape plants
- VamPyre is the best product to use for hard-to-kill populations or where insecticide resistance is suspected

USAGE

- Control mosquitoes
- Reclaim backyards or patios
- Attain more cost-effective mosquito control

- Control flies and mosquitoes
- Backyards and barns
- For hard-to-kill insect populations



Outside of homes or commercial buildings



Trees, lawn and landscape



Dairy, poultry and livestock

Synergist Ratios

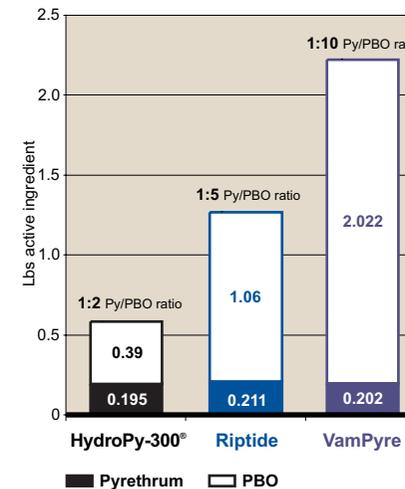
Pyrethrum is commonly used with one or more synergists, usually Piperonyl Butoxide (PBO) or MGK 264. While pyrethrum does not need a synergist to effectively control insects, synergists reduce the amount of pyrethrum required to achieve results and can improve performance against insecticide-resistant populations. Synergists work by reducing insects' ability to metabolize insecticides, increasing the level of control.

Piperonyl Butoxide (PBO) is the optimum synergist for flying insects, such as mosquitoes. When evaluating products for mosquito control, it is vital to take not only the amount of pyrethrum a product will deliver into consideration, but also the ratio and amount of Piperonyl Butoxide (PBO) delivered.

Professional mosquito control products use a minimum ratio of 1 part pyrethrum to 5 parts PBO. So a 1:5 ratio of pyrethrum to PBO should be considered the minimum acceptable level when deciding which product to use. For mosquitoes or other insects that are more difficult to kill, a 1:10 ratio of pyrethrum to PBO should be used.

The chart below details the amount and ratio of pyrethrum to PBO in several popular products used in residential misting systems. While the level of pyrethrum delivered is similar, the 1:5 and 1:10 formulations will deliver a more consistent, higher level of control under the widest variety of conditions.

Misting Product Active Ingredient Comparison



Pounds of active ingredients based on dilution rates recommended in Whitmire and MGK promotional literature: 101 fl. oz. of HydroPy-300, 64 fl. oz. of Riptide and 101 fl. oz. of VamPyre in 55 gallon tank fill.

MGK: A History of Pyrethrum

Four generations of family management have guided MGK since its founding. This long tradition of stability and continuity is a major reason why MGK has earned the respect of both the business and scientific communities.

1902 McLaughlin Gormley King Company (MGK) is founded as a spice miller and grinder. Imported spices were packed with dried pyrethrum flowers to keep the insects out of the spices.

1919 MGK hires C.B. Gnadinger, whose work allowed production of the first concentrated pyrethrum extracts. Gnadinger was later president of MGK from 1944 to 1950.

1920s Pyrethrum was introduced as a possible crop to the highlands of Eastern Africa.

1935 MGK began to switch from botanical drugs and spices to insecticides. By 1939 MGK sold pyrethrum-based insecticides in the entire United States and in 30 other countries.

1941 Kenya overtook Japan as the largest world producer of pyrethrum. MGK purchased the first flowers ever exported from Kenya, and all Kenyan production for the first few years.

1950s MGK first began offering synergists MGK 264 and MGK PBO.

1960s MGK focused on service and began teaching customers techniques for formulation and use of pyrethrum and synergists.

1980s First commercial harvest of pyrethrum in Australia.

1990s MGK built a new state-of-the-art pyrethrum-refining facility in Chaska, MN.

2000s MGK continues to invest in research and development of pyrethrum-based products such as organically-compliant pyrethrum and water-based products like Riptide Waterbased Pyrethrin ULV.



To learn more visit www.mgkpro.com, call **1-866-MGK-4PRO** (1-866-645-4776) or send an e-mail to brands@mgk.com.