ACTELLIC®

An effective, broad spectrum insecticide for the control of public health pests

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ACTELLIC®

What is ACTELLIC?

ACTELLIC® is an organophosphate insecticide which controls a wide range of public health pests, including mosquitoes, flies, cockroaches, fleas, ants and other crawling insects. Insects are killed by contact, ingestion and fumigant action. It is equally effective on those insects resistant to organochlorine and some organophosphate chemicals such as malathion.

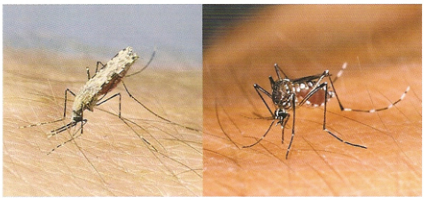
ACTELLIC has a low mammalian toxicity and can be used for the disinfestation of domestic premises, industrial and catering establishments, food stores and education establishments. When used in buildings and domestic premises, ACTELLIC persists on walls, floors, and other inert surfaces to give long-term residual insect control. ACTELLIC can also be used to disinfect beaches, refuse tips and new or seasoned timber.

Furthermore, ACTELLIC has been successfully evaluated by the WHO Pesticide Evaluation Scheme (WHOPES) as a mosquito larvicide, space spray and as a residual spray for malaria vector control.

ACTELLIC is a highly flexible product that can be used in three key segments of vector insect control: Indoor Residual Spraying (IRS), Space Spraying, and Mosquito Larviciding. Whilst being a highly effective standalone product, within these use patterns ACTELLIC is also an excellent alternative to, or rotation partner for pyrethroids as part of a resistance management program. It is extremely important to use products with different modes of action in order to maintain effective long term control of insects such as *Anopheles* spp. that transmit serious human diseases.

Formulations

ACTELLIC is available as easy-to-use, emulsifiable concentrate formulations containing either 500g a.i. per liter (50EC) or 250g a.i. per liter (25EC).



ACTELLIC controls a wide range of public health pests. The more important of these are listed below.

Mosquitoes e.g.
Anopheles spp,
Aedes spp,
Culex spp

Flies e.g.
Musca domestica, Calliphoridae,
Lucillia cuprina, Coelopa frigida

Cockroaches e.g.
Blatta orientalis,
Blattella germanica

Bed Bugs
Cimex spp

Reduviid bugs e.g.
Triatoma infestans

Ants e.g.
Lasius niger

Wasps e.g.
Vespula vulgaris, Vespa crabro

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Recommended rates of application

Target Pest and situation	Active Ingredient/area	Diluent	Amount of ACTELLIC 50EC for 1 liter of spray	Rate of diluted product/area
RESIDUAL				
Malaria mosquitoes	1-2 g/m^2	water	50-100 ml	Apply spray solution at a rate of 40 ml per m^2 of surface
Flies and nuisance mosquitoes: indoors	0.5 g/m^2	water	25 ml	
Flies: long persistence outdoors	1-2 g/m^2	water	50-100 ml	
Cockroaches	1-2 g/m^2	water	50-100 ml	
SPACE TREATMENT				
Mosquitoes				
Thermal fog				
- hand held	100 g/ha	kerosene/diesel	100 ml	2 L/ha
- vehicle mounted	100 g/ha	kerosene/diesel	40 ml	5 L/ha
Cold aerosol ULV				
- ground	100 g/ha	kerosene/diesel	400 ml	0.5 L/ha
- aerial	200 g/ha	kerosene/diesel	200 ml	2 L/ha
Flies				
Thermal fog				
- hand held	200 g/ha	kerosene/diesel	200 ml	2 L/ha
- vehicle mounted	200 g/ha	kerosene/diesel	80 ml	5 L/ha
Cold aerosol ULV				
- ground	250 g/ha	kerosene/diesel	1L	0.5 L/ha
- aerial	400 g/ha	kerosene/diesel	400 ml	2 L/ha
MOSQUITO LARVICIDE				
- short persistence/ shallow water	50 g/ha	water	1 ml	100 L/ha
- long persistence/ deep water	500 g/ha	water	10 ml	100 L/ha

Note: Always read and follow directions for use on the product label.

Control of pyrethroid-resistant *Anopheles funestus* with ACTELLIC

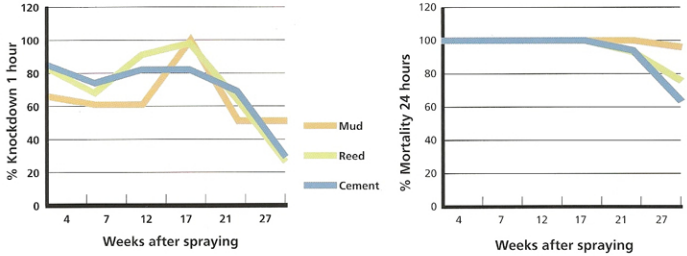
Source: Casimiro, S., Goncalves R., unpublished data.

Since 2002, ACTELLIC has been evaluated in more than 4,000 homes as an Indoor Residual Spray treatment, primarily for the control of *Anopheles* spp. in Catembe, Mozambique. The principal malaria vector in Catembe, *Anopheles funestus*, has developed widespread resistance to pyrethroids and carbamates.

The data (below) demonstrates that *Anopheles arabiensis* are effectively controlled by ACTELLIC for at least five months on a variety of typical residential surfaces. Households included in the ACTELLIC trials also benefited from the control of other nuisance pests such as endophilic *Culex* spp., cockroaches, bedbugs, and fleas. Commensurate with the control of the mosquito population in the program, malaria prevalence (measured by blood smears) and fever cases (reported to the local health center) were both significantly reduced.

Anopheles arabiensis bioassays on surfaces treated with pirimiphos-methyl 2g a.i./m^2 in houses at Catembe, 2002 – 2003.

Knockdown and Mortality of *Anopheles* exposed to surfaces treated with pirimiphos-methyl 2g a.i./m^2 in houses at Catembe, Mozambique 2002-2003



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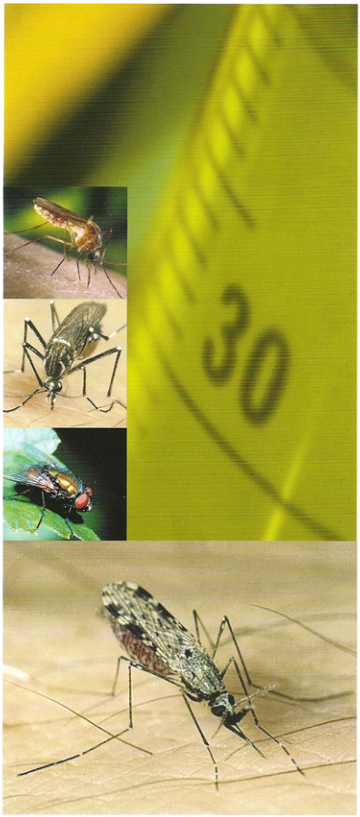
Toxicology, environmental safety profile



ACTELLIC has an excellent toxicological and environmental safety profile. The information presented demonstrates that ACTELLIC presents no significant risk to human, other organism or to the environment when used as directed.

Mammalian toxicity

The toxicity of ACTELLIC is summarized as follows:

Acute Oral Median Lethal Dose, Rat (mg/kg)	1500 - 1800	Low toxicity
Acute Dermal Median Lethal Dose, Rat (mg/kg)	>2000	Low toxicity
Eye Irritation, Rabbit	Moderate	No concern
Skin Irritation, Rabbit	Slight	No concern

ACTELLIC is predicted to be of low acute and dermal toxicity, not a skin sensitizer, moderate irritant to rabbit eyes and slight irritant to rabbit skin.

The active ingredient pirimiphos-methyl is not carcinogenic or teratogenic.

Fate in Soil

The intended use of ACTELLIC is not expected to result in exposure to soil. Pirimiphos-methyl has a soil half-life of less than one month and under some conditions less than 10 days. Therefore, any indirect exposure to soils will have no significant environmental effect.

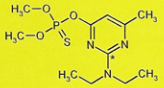
Fate in Water

ACTELLIC is currently applied as a mosquito larvicide directly to non-potable, stagnant, saline, brackish and polluted waters. Exposure to ACTELLIC is limited to those aquatic environments, where mosquito breeding occurs, as these waters are unsuitable as a source of drinking water.

ACTELLIC degrades in natural water by hydrolysis and photolysis reactions. In estuarine environments where tidal flushing occurs repeat applications are not expected to result in accumulation of ACTELLIC residues.

Toxicology, environmental safety profile

Physico-Chemical Properties of Active Ingredient

Common name	Pirimiphos-methyl (ISO)
Chemical name (IUPAC)	0-2-diethylamino-6-methylpyrimidin-4-yl 0, 0-dimethylphosphorothioate
Chemical Abstract Registry Number	29232-93-7
Chemical class	Organophosphate
Molecular formula	$C_{11}H_{20}N_3O_3PS$
Chemical structure	
Molecular weight	305.4
Appearance	White solid
Boiling point	Decomposes at 120°C
Solubility (water)	9.7–11 mg/l at pH9
Solubility (other)	acetone>200g/l, 1,2-dichloroethane >200g/l, methanol >200g/l, ethyl acetate >200g/l, n-heptane 189g/l, xylene >200g/l
Vapor pressure	2.0×10^{-4} kPa at 20°C

Broad spectrum:

Controls a wide range of disease-carrying and nuisance pests including mosquitoes, ants, wasps, flies, cockroaches, fleas and other crawling insects. Effective against insects that are resistant to other organophosphate, pyrethroid, carbamate, and biological insecticides.

Versatile:

Can be used in domestic, industrial, storage and catering establishments and on refuse tips. Useful in mosquito vector control as a residual treatment, space spray, or larvicide.
Can be applied by ground sprayer or aerial equipment.

Effective:

Acts quickly and has contact, ingestion, and fumigant properties. Spray deposit persists on walls and inert surfaces to give long-term residual control.

Low toxicity:

ACTELLIC presents no significant risk to humans, other organisms or to the environment when used as directed.

WHO Evaluation:

ACTELLIC has been successfully evaluated by the WHO Pesticide Evaluation Scheme as a mosquito larvicide, space spray and as an indoor residual spray for malaria vector control.

Formulation:

Available as easy-to-use, emulsifiable concentrate formulations containing either 500g a.i. per liter (50EC) or 250g a.i. per liter (25EC).

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READ THE LABEL BEFORE YOU BUY: USE PESTICIDES SAFELY.
ACTELLIC® contains pirimiphos-methyl.

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