

Control of the Anopheles **Genus Mosquitoes**











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INESFLY technology allows the incorporation of different active ingredients (natural products, biocide, etc.) into a polymeric microcapsule. A slow gradual release mechanism with a controlled long residual effect lets improve its persistence and facilitates its use for controlling pests, insects and vectors that are present in our environment.

SPECIFIC PROPERTIES

- Long persistence of efficacy
- Safety for people and animals
- Scientific studies published Own application methodology
- Resistance to alkalinity, UV radiation and temperature
- Reduces the cost of treatment
- Lower toxicity and ecotoxicity

INESFLY products are the result of a long process of research and development. Efficacy studies and research projects are the last step of this process. These studies have been carried out under international protocols by well-known centers and experts in Public Health worldwide.





Inesfly is constantly developing insecticide products based on its technology and is able to adapt to specific requirements of the insect, geographical area, resistance status, regulatory aspects, etc. INESFLY products allow the protection of people, against Anopheles mosquitoes genus, either directly or through the integral control of their biological cycle.

INESFLY technology, patented in numerous countries, is used in different areas as Public Health, Animal health and Agriculture and Ornamentals.

Inesfly microcapsule creation is a chemical process which produces microcapsules in suspension, where conventional biocides at very low doses and insect growth regulators are included. Gradual and controlled release of the microencapsulated active ingredients is a direct result of the polymeric covering.

We believe in comprehensive health projects based on three points:

- Vector control
- Diagnosis and clinical treatment
- Education and training in health and hygiene







ANOPHELES MOSQUITOES DISEASE TRANSMISSION

Strategies for the prevention and eradication of vector-borne diseases necessarily go through the interruption of the life cycle of the transmitting disease causing agent before accessing the human being.

Thus, the control of this type of diseases necessarily involves controlling the populations of the transmitting vector. In order to successfully carry out these control actions, it is essential to know the biology and ecology of vectors.

Malaria or Paludism is the most important disease transmitted by mosquitoes: it causes half a million annual deaths, the majority in the African continent, of which approximately 90% are children under 5 years old.

It is an endemic disease which slows the economic growth and development of the affected countries, and implies a really high cost for the Public Health system.

Malaria is caused by parasites of the genus *Plasmodium* that are transmitted by mosquitoes from the genus *Anopheles*.

The adults of *Anopheles* have scales on the wings and, they have a characteristic position at rest, since they have their abdomen steeply, in contrast to the abdomen parallel to the resting surface that is observed in other species. They are active from sunset to sunrise.

Males feed on nectar and other sources of sugar. Females, in addition to sugar, need blood as a source of protein to develop eggs. 2-3 days after a blood intake, the female lay eggs - between 50 and 200 - one by one in the water surface. Eggs do not resist dryness. After 2-3 days they hatch and each of them releases a larvae.

The *Anopheles* mosquito larvae have no respiratory siphon, so they stay parallel to the water surface for breathing.



This vector can breed in various habitats, including rice fields and irrigation waters. *Anopheles* mosquito larvae have been found in freshwater, saltwater swamps, mangroves, grassy ditches, the edges of streams and rivers, as well as small temporary rain pools.

Efforts to control these vectors should be directed towards achieving the maximum possible reduction of their populations, which will result in a decrease in the incidence of the diseases they transmit and, consequently, be able to live in a healthier environment.

To achieve this control, it is essential to apply a strategy of integral control that acts in different environments (housing, outdoor environments, etc.) and, above all, takes into consideration all the phases of vector development and the protection of people.

From INESFLY we propose specific product lines for:

- adults
- larves
- personal protection



















SCIENTIFIC STUDIES

FIELD EVALUATION OF THE EFFICACY OF INESFLY 5A IGR PAINT AGAINST Anopheles gambiae AND Culex quinquefasciatus

In experimental housing, the persistence of the efficacy of the INESFLY 5A IGR PAINT against Anopheles gambiae and Cx. guinguefasciatus was tested in open field conditions. Different applications (walls, walls and ceilings) and combinations of 1 or 2 layers of paint were made. The distance efficacy of the formulation was tested. The trials were carried out by the Department of Parasitology of the University of Valencia (Spain), the LIN-IRD of Montpellier (France) and the CREC of Cotonou (Benin).

The results showed a rapid mortality, persistence of the efficacy of 9 months and the efficacy of distance painting of airborne effect.



















Bioassays with mosquitoes. Nigeria

EVALUATION OF THE EFFECTIVENESS OF INESFLY 5A IGR PAINT FOR Culex quinquefasciatus CONTROL IN LABORATORY **ON DIFFERENT SURFACES**

Carried out in collaboration with the Department of Parasitology of the University of Valencia (Spain) and the LIN-IRD of Montpellier (France). Laboratory efficacy persistence tests were conducted with susceptible and organophosphate resistant strains of *Culex guinguefasciatus*. INESFLY 5A IGR PAINT was tested in two concentrations and on different surfaces (wood, metal, cement and plaster).

The results showed that the product has a high mortality on non-porous surfaces after one year and it was noticed a rapid mortality of susceptible mosquitoes on porous even at one year after paint application. There are no marked differences between concentrations. The efficacy is longer with 2 paint layers than 1 paint layer. Effects in fecundity and fertility due to pyrirproxyfen exposure were observed during 9 months after paint application.

EVALUATION OF THE EFFECTIVENESS OF INESFLY 5A IGR PAINT AGAINST MALARIA VECTORS IN UGANDA, RWANDA AND NIGERIA

Residual efficacy studies carried out in real houses and public facilities were executed by the National Division of Malaria Control (Uganda), Rwanda Biomedical Center (Rwanda) and the University of Nasarawa (Nigeria) through the bioassay of the WHO cone attached to painted walls and exposing *Anopheles* gambiae mosquitoes.

This insecticide paint showed efficiencies greater than 90% up to 26 months after its application.



Insecticide paint application. Rwanda.

SCIENTIFIC



1.Efficacy of an insecticide paint against insecticide-susceptible and resistant mosquitoes -Part 1: Laboratory evaluation.

Beatriz Mosqueira, Stephane Duchon, Fabrice Chandre, Jean-Marc Hougard, Pierre Carnevale, Santiago Mas-Coma. Malaria Journal 2010, 9:340.

2.Efficacy of an insecticide paint against malaria vectors and nuisance in West Africa - Part 2: Field Evaluation.

Beatriz Mosqueira, Joseph Chabi, Fabrice Chandre, Martin Akogbeto, Jean-Marc Hougard, Pierre Carnevale, Santiago Mas-Coma. Malaria Journal 2010, 9:341.

3. Proposed use of spatial mortality assessments as part of the pesticide evaluation scheme for vector control.

Beatriz Mosqueira, Joseph Chabi, Fabrice Chandre, Martin Akogbeto, Jean-Marc Hougard, Pierre Carnevale, Santiago Mas-Coma. Malaria Journal. 2013. 12:366.

4.Pilot study on the combination of an organophosphate-based insecticide paint and pyrethroid-treated long lasting nets against pyrethroid resistant malaria vectors in Burkina Faso.

Beatriz Mosqueira, Dieudonné D. Somab, Moussa Namountougou, Serge Poda, Abdoulaye Diabaté, Ouari Alib, Florence Fournet, Thierry Baldet, Pierre Carnevale, Roch K. Dabiré, Santiago Mas-Coma. Acta Tropica. Volume 148, August 2015, Pages 162–169.

5. Targeted application of an organophosphate-based paint applied on windows and doors against Anopheles coluzzi resistant to pyrethroids under real life conditions in Vallée du Kou, Burkina Fasso (West Africa).

Serge B. Poda, Dieudonné D. Soma, Aristide Hien, Moussa Namountougou, Olivier Gnankiné, Abdoulaye Diabaté, Florence Fournet, Thierry Baldet, Santiago Mas-Coma, Beatriz Mosqueira and Roch K. Dabiré. Malaria Journal 17:136. 2018

7. Reduction of Mosquito Abundance Via Indoor Wall Treatments: A Mathematical Model. Vardayani Ratti, Evan Rheingold, Dorothy Wallace. J. Med. Entomol. 2018 Jun 28;55(4):833-845.



• INESFLY BODY REPELLENT

PERSONAL PROTECTION

• INESFLY SP COATING

INSECTICIDE COATINGS

• INESFLY LARVA IGR

INSECTICIDE DISPERSIONS

- INESFLY CARBAPAINT 10
- INESFLY ARES
- INESFLY 5A IGR NG
- INESFLY 5A IGR
- INESFLY VESTA

INSECTICIDE PAINTS

INESFLY

• INESFLY EM HOUSE IGR NG

INSECTICIDE PAINTS



INESFLY VESTA

DESCRIPTION

Inesfly VESTA is a double-acting insecticide paint that contains a special pyrethroid capable of exerting a powerful contact and vapor phase effect, creating a repellent space for insects. Very effective product for flying insects such as mosquitoes, flies, sandflies and also for crawlers like cockroaches, bedbugs and ants. Especially recommended for the control of vectors that transmit endemic diseases such as malaria, dengue, leishmaniosis, etc. Inesfly VESTA paint is recommended for areas with susceptibility and resistance to pyrethroid insecticides.

COMPOSITION

USES

Easy to use as a conventional water paint, being able to apply by brush, roller, hand spraying devices and airless systems. Depending on the type of surface and the level of infestation, the application doses range from 1 lt/8 m² to 1 lt/12 m².

To achieve the best results, it is advisable to apply the INESFLY PAINTS on as much surface area as possible, avoiding "shelter" areas for pests.

PRESENTATIONS

1 liter, 4 liters and 10 liters



INESFLY 5A IGR

DESCRIPTION

Inesfly 5A IGR is a paint based on organophosphate insecticides and Insect Growth Regulators (IGR) very effective for all types of insects: mosquitoes, flies, cockroaches, bedbugs, fleas, ticks, spiders, scorpions, ants and mites. The product achieves the control of all type of arthropods and disease vectors of malaria, Chagas, dengue, leishmaniosis, etc.

Inesfly 5A IGR paint is especially recommended in areas where there is resistance to pyrethroid insecticides. It can be used in all interior places where there is a high infestation of insects.

COMPOSITION

Chlorpyrifos	. 1.5%
Diazinon	. 1.5%
Pyriproxyfen0.	063%

USES

Easy to use as a conventional water paint, being able to apply by brush, roller, hand spraying devices and airless systems. Depending on the type of surface and the level of infestation, the application doses range from 1 lt/8 m² to 1 lt/12 m².

To achieve the best results, it is advisable to apply the INESFLY PAINTS on as much surface area as possible, avoiding "shelter" areas for pests.

PRESENTATIONS

1 liter, 4 liters and 10 liters



INESFLY 5A IGR NG

DESCRIPTION

Inesfly 5A IGR NG is a paint based on pyrethroid insecticides and IGR that allows controlling all types of arthropods and pests, especially for the control of vectors that transmit endemic diseases such as malaria, dengue, Chagas, leishmaniosis, etc.

Very effective for all types of insects: mosquitoes, flies, cockroaches, bedbugs, fleas, ticks, spiders, scorpions, ants and mites. It can be used in all places where there is a high infestation of insects, such as: interior of homes, offices, health centers, hospitals, schools, hotels, workplaces etc

COMPOSITION

Alfhacipermethrin	0.7%
D-allethrin	1.0%
Pyriproxyfen	0.063%

USES

Easy to use as a conventional water paint, being able to apply by brush, roller, hand spraying devices and airless systems. Depending on the type of surface and the level of infestation, the application doses range from 1 lt/8 m^2 to 1 lt/12 m^2 .

To achieve the best results, it is advisable to apply the INESFLY PAINTS on as much surface area as possible, avoiding "shelter" areas for pests.

PRESENTATIONS

1 liter, 4 liters and 10 liters

INSECTICIDE PAINTS



INESFLY ARES

DESCRIPTION

Inesfly ARES is an indoor insecticide paint that combines the action of an organophosphate and an IGR. Very effective product for all types of insects: mosquitoes, flies, cockroaches, bedbugs, fleas, ticks, spiders, scorpions, ants and mites.

It allows to control all types of arthropods and pests, especially for the control of vectors that transmit endemic diseases such as malaria, dengue, Chagas, leishmaniasis, etc. Inesfly ARES paint is especially recommended in areas of presence of insect populations resistant to pyrethroid insecticides.

COMPOSITION

Pyrimiphos-methyl	.1.0%
Pyriproxyfen	0.1%

USES

Easy to use as a conventional water paint, being able to apply by brush, roller, hand spraying devices and airless systems. Depending on the type of surface and the type of pest and the level of infestation, the application doses range from 1 $It/8 m^2$ to $1 It/12 m^2$.

To achieve the best results, it is advisable to apply the INESFLY PAINTS on as much surface area as possible, avoiding "shelter" areas for pests.

PRESENTATIONS

1 liter, 4 liters and 10 liters

INESFLY CARBAPAINT 10

DESCRIPTION

Inesfly CARBAPAINT 10 is an insecticide paint that contains propoxur, a carbamate insecticide with a broad spectrum of efficacy: mosquitoes, flies, cockroaches, bedbugs, fleas, ticks, spiders, scorpions, ants and mites.

It allows to control all types of arthropods and pests, especially for the control of vectors that transmit endemic diseases such as malaria, dengue, Chagas, leishmaniasis, etc. Inesfly CARBAPAINT 10 paint is especially recommended in areas of presence of populations of insects resistant to pyrethroid insecticides.

COMPOSITION

USES

Easy to use as a conventional indoor water paint, it can be applied by brush, roller, hand spraying devices and airless systems. Depending on the type of surface and the type of pest and the level of infestation, the application doses range from $1 \text{ lt}/8 \text{ m}^2$ to $1 \text{ lt}/12 \text{ m}^2$.

To achieve the best results, it is advisable to apply the INESFLY PAINTS on as much surface area as possible, avoiding "shelter" areas for pests.

PRESENTATIONS

1 liter, 4 liters and 10 liters

INSECTICIDE **DISPERSIONS**



INESFLY EM HOUSE IGR NG

DESCRIPTION

Inesfly EM HOUSE IGR NG is an aqueous dispersion of readyto-use microencapsulated insecticides containing insecticides, acaricides and insect growth regulators.

Very effective in controlling all types of arthropods. It can be applied on surfaces where the use of insecticide paint is not suitable. Application on fabrics: product specially designed for personal protection through textiles in places with presence of disease-transmitting vectors.

Product supplied to NATO no 9484B.

COMPOSITION

Alfhacipermethrin	0.3%
D-allethrin	0.3%
Pyriproxyfen	. 0.063%

USES

Product ready to use. Apply directly to any surface to be treated. It can be applied by trigger spray and backpack sprayers.

Spray about 50 ml of product per m^2 (a 5 liters sprayer allows you to treat an area of 100 m^2).

It is recommended to spray the tissues –clothes, canvases, etc.- Apply at a distance of 15 cm and let dry for 3-hours. Apply again after each wash.

PRESENTATIONS

100ml, 250ml, 500ml and 5 liters



INESFLY LARVA IGR

DESCRIPTION

Inesfly Larva IGR is a larvicidal product that contains an insect growth regulator of the juvenile hormone analogue type.

It has high specificity to interfere with the processes of molting in immature stages of mosquitoes and flies.

This product is designed for application in non-potable water including shallow ponds, stagnant water pools, sinks, drainage pipes in urban areas, batteries, water in tires ect.

COMPOSITION

Pyriproxyfen 0.2%

USES

Product ready to use. Apply directly to the surface to be treated. It can be applied with hand spraying devices and airless systems.

Dose: 1 liter/15m².

PRESENTATIONS

500ml and 5 liters

INSECTICIDE COATINGS

PERSONAL PROTECTION



INESFLY SP COATING

DESCRIPTION

Inesfly SP COATING is a transparent water-based insecticide coating that contains microcapsules of insecticides, acaricides and insect growth regulator in places where you do not want to change the appearance of the surfaces to be treated.

Product based on pyrethroid insecticides very effective against all types of insects, such as: mosquitoes, flies, cockroaches, bedbugs, fleas, ticks, spiders, scorpions, ants and mites.

COMPOSITION

Alfacipermethrin	0.7%
D-allethrin	1.0%
Pyriproxyfen	0.063%

USES

Dose : 1 liter/10 m² - 1 liter/12 m²

To achieve the best results, it is advisable to apply the product on as much surface area as possible, avoiding "shelter" areas for pests.

Application method: brush, roller, hand spraying devices and airless systems.

PRESENTATIONS

Spray: 400ml 1 liter, 4 liters and 10 liters



INESFLY BODY REPELLENT

DESCRIPTION

Inesfly BODY REPELENT is an effective body repellent against mosquitoes and other insects such as ticks. Provides protection for more than 6 hours.

COMPOSITION

Pyrethrum Extract.

Piperonyl Butoxide.

Citral. D-Limonene. Geraniol.

USES

Apply and spread well on all areas of skin exposed to bites. Frequent and repeated use is not necessary.

Do not use in children under 2 years.

PRESENTATIONS

100ml

CONTROL ANOPHELES MOSQUITOE





Interior walls and ceilings of homes and buildings
Body (skin application)
Stagnant waters and ponds
Ponds, irrigation ditches, river backwaters
Textiles (curtains, carpets, carpets)
Textiles (clothing, uniforms)



www.inesfly.com

INESFLY

INESFLY CORPORATION HAS SOLUTIONS FOR CONTROLLING VECTOR OF OTHER INFECTIOUS DISEASES DIFFERENT TO MALARIA:



MOSQUITOS OF THE Aedes GENDER, dengue, zika, chikungunya and yellow fever vector.



TRIATOMINE BUGS, Chagas disease vector.



SANDFLIES, transmitting of visceral, cutaneous and mucocutaneous **leishmaniasis**.



TSE TSE FLY, vector of African trypanosomiasis.



TICKS, Rickettsiosis vector.



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