

# BITHOR<sup>®</sup> DUAL ACTION INSECTICIDE



**bifenthrin**



**imidacloprid**

**THE SILENT ASSASSINS**  
TWO DIFFERENT MODES OF ACTION COMBINE  
INTO THE UNSTOPPABLE INSECTICIDE



**Dual mode of action**

using the intensified effects of two actives with completely different properties



**Non-repellent**

through the two actives working together to become undetectable



**Competitive**

Priced so you can use indoors or outdoors any time you need



**Long term**

Continues to protect your property through the effects of two well known residual actives

# BITHOR® DUAL ACTION

INSECTICIDE

In 1985, a **Japanese visionary** discovered neonicotinoid insecticides and **revolutionized pest control**. Ensystem have taken his foundation and melded it with **another discipline**, pyrethroid chemistry, creating an **unstoppable synergy BITHOR® DUAL ACTION**.

## KETSUGO BUKI

**def:** forge a combination weapon

**TWO ACTIVES**, 45 g/L bifenthrin (pyrethroid) and 55 g/L imidacloprid (neonicotinoid), each with a totally different mode of attack combine into an unstoppable synergy stronger than its individual components.

## KAKUSHI BUKI

**def:** art of hidden weapons

**NON-REPELLENT**, odourless, water-based micro-suspension concentrate, meaning the insect will remain in contact with the treated surface longer - unaware it is acquiring its lethal dose.

## ANSATSUNIN

**def:** power of an assassin

**LONG TERM**, residual action is provided through the intensified effects of two well known and trusted actives, magnifying the potency of the other, even after a prolonged period.

## BUJINKAN

**def:** the divine warrior academy

**COMPETITIVELY PRICED**, so you can harness the power. Available for both indoor and outdoor use, the magnifying effect means BITHOR DUAL ACTION is more effective, even at lower concentrations.

THE PROVEN POWER OF BIFENTHRIN  
COMBINES WITH NON-REPELLENT IMIDACLOPRID



# BITHOR<sup>®</sup> DUAL ACTION INSECTICIDE

Two actives from **two totally different chemical groups** combine together to create a **synergistic effect** with **each active intensifying the effects of the other**, to kill even the toughest pests.

## HOW THE DUAL ACTION EFFECT WORKS

Bifenthrin is combined with the non-repellent imidacloprid, to create a combination product that is effectively non-repellent.

Non-repellent acetylcholine impersonator  
**Gisojutsu**

**def:**  
art of hidden weapons

Ingredients are milled together to create an even distribution



Actives meld into one unique product

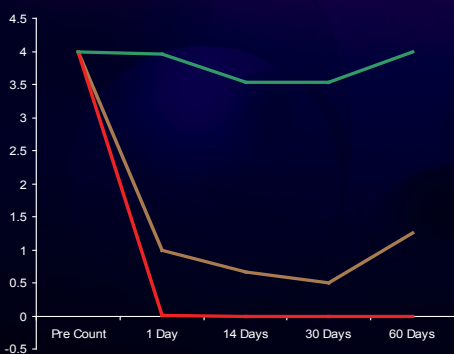
Pyrethroid power from the well-trusted and proven bifenthrin  
**Kakushi geri**

**def:**  
kicking open the gates

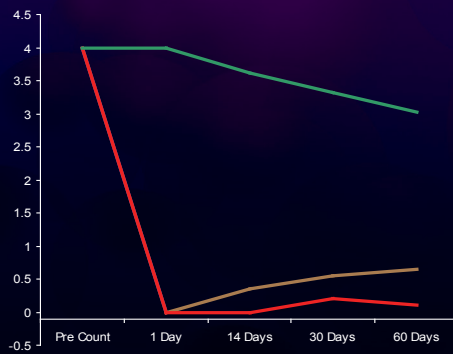
Creating a product stronger than its individual actives

## FIELD TRIAL RESULTS AGAINST VARIOUS ANT SPECIES

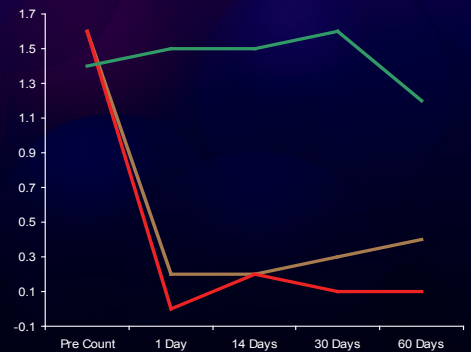
■ BITHOR DUAL ACTION ■ BIFENTHRIN ■ CONTROL



Black ants (*Ochtellus glaber* Mayr)



Coastal brown ants (*Pheidole megacephala* Fabricius)



White-footed house ants (*Technomyrmex albipes* F. Smith)

# BITHOR® DUAL ACTION

## KAGE ARUKI JUTSU

**def:** forge a combination weapon

BITHOR DUAL ACTION blends two actives, bifenthrin and imidacloprid, together to form a micro-suspension concentrate, where the particle size is optimised to penetrate the insect cuticle more readily, whilst providing improved residual performance on a wide range of surfaces and under a wide range of weather conditions.

### POWER FROM SYNERGY

By combining two actives from two totally different chemical groups we create a unique product that kills the toughest pests. The two actives combine together to create a synergistic effect with each actively intensifying the effects of the other, to create a more potent solution than either alone.

# IMIDACLOPRID

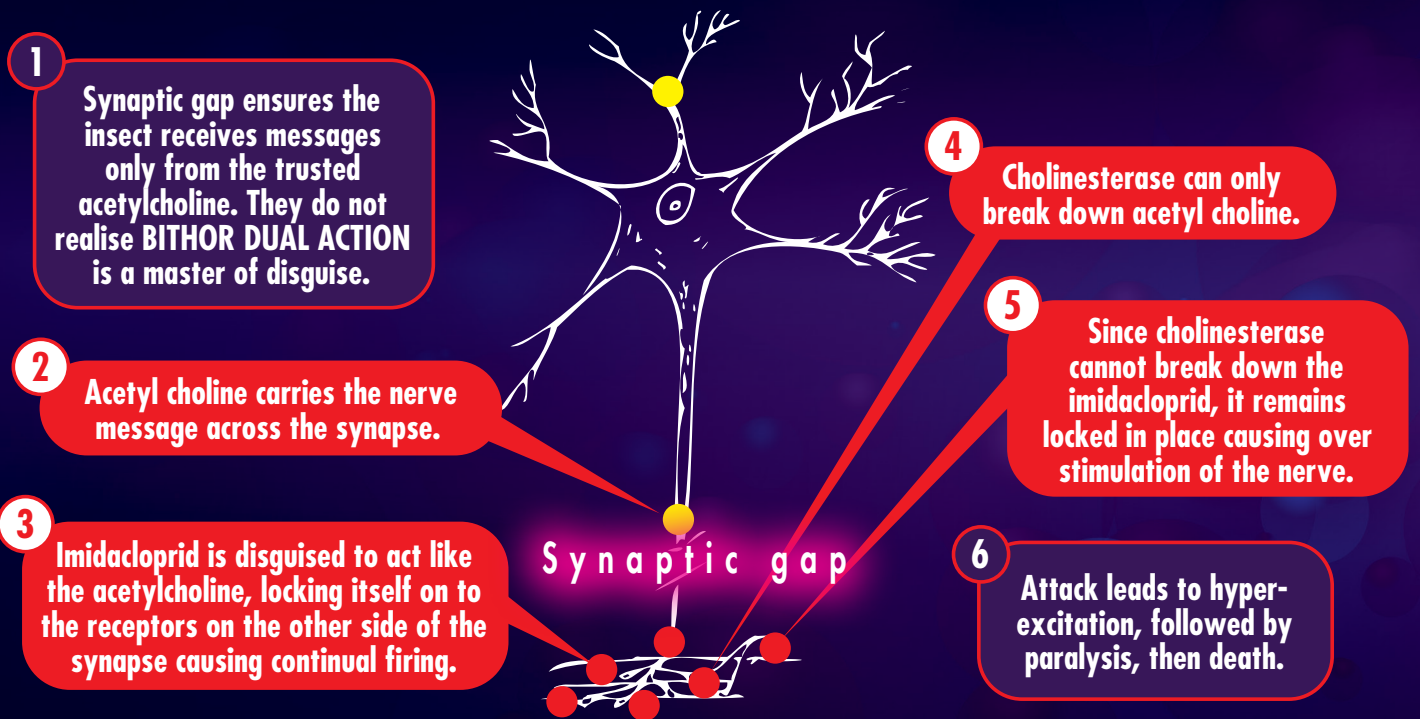
## THE ART OF GISOJUTSU

**def:** art of hidden weapons

Japanese visionary Professor Shinzo Kagabu is the principal discoverer and father of the neonicotinoid insecticides. Professor Shinzo first prepared imidacloprid in 1985 when he was a researcher in the pesticide development project in Nihon Tokushu Noyaku Seizo.

Imidacloprid is a neonicotinoid insecticide that acts as **a synaptic toxin**. It mimics the actions of the naturally occurring neurotransmitter, acetylcholine.

Acetylcholine passes the nerve cell message across the synaptic gap. The acetylcholine is then broken down by the enzyme cholinesterase. However, cholinesterase cannot break down imidacloprid, so the nerve cells are continually stimulated, resulting in a neural overdose.



## PROVEN ACTIVE INTENSIFYING TECHNOLOGY BREAKTHROUGH FROM ENSYSTEX

### BED BUG KILLER

Product	Cumulative percentage mortality of adult <i>Cimex lectularius</i> Linnaeus			<i>Cimex hemipterus</i> Fabricius Pyrethroid resistant tropical bed bug trial - mortality rate (%)			
	'Sydney' resistant strain	'Monheim' susceptible strain	1hr	Rep 1	Rep 2	Rep 3	Average
BITHOR DUAL ACTION	35%	100%	100%	100	100	100	100
CONTROL	0%	0%	0%	0	0	0	0

Department of Medical Entomology, ICPMR, Westmead Hospital

Pyrethroid resistant bed bug trial by Department of Medical Entomology – Thailand



# BIFENTHRIN

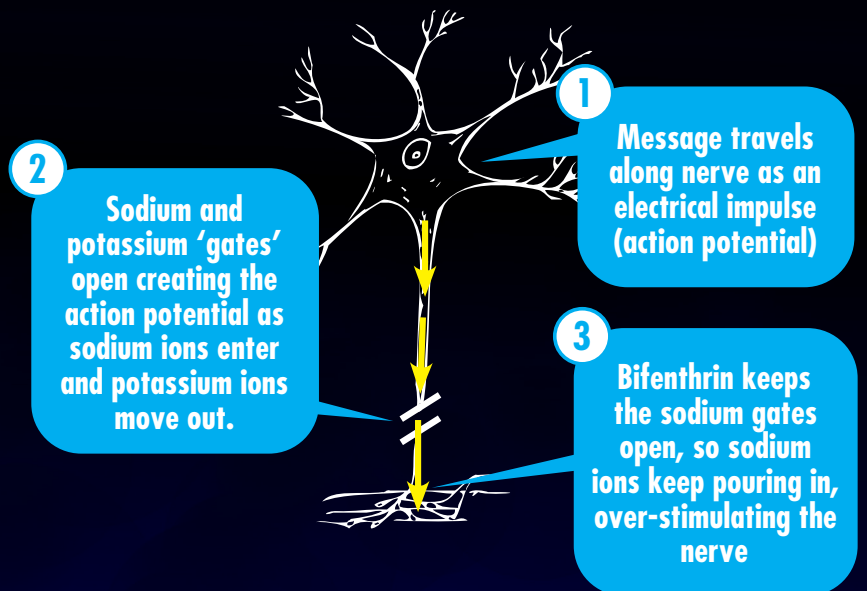
## KAKUSHI GERI

**def:** kicking open the gates

In contrast to imidacloprid, bifenthrin is a pyrethroid insecticide that acts as **an axonic toxin**. The nerve axon is electrically polarised; when a message passes along the axon it does so through the effects of sodium and potassium 'gates'. Pyrethroids affect the polarity of the nerve by keeping the 'sodium gates' open; so the insects go into convulsions.

Unlike most other pyrethroids, bifenthrin contains no alpha-cyano group, and since the combination with imidacloprid allows it to be used at a reduced level, it means that BITHOR DUAL ACTION is essentially non-repellent. This ensures the insect will remain in contact with the treated surface longer providing improved performance over products that use alpha-cyano pyrethroids\*. This means BITHOR DUAL ACTION is more effective, even at lower concentrations, which in turn improves the performance of the product.

\*Examples of alpha-cyano pyrethroids include beta-cyfluthrin, deltamethrin, cypermethrin, lambda-cyhalothrin.



## BITHOR® DUAL ACTION FAMILY FRIENDLY NINJAS

While the thought of BITHOR DUAL ACTION is making household insects nervous, it has a different effect on your family members. This is because mammals and insects have structural differences in their nervous systems. A range of toxicology studies were

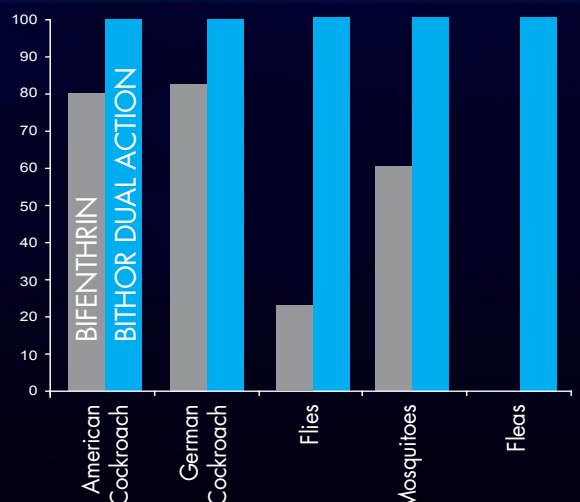
performed on BITHOR DUAL ACTION Insecticide to confirm the safety of the product with the combination of actives. All studies were performed by Eurofins Product Safety Laboratories in New Jersey, USA; in accord with US EPA and OECD guidelines.

Test	Result	Comments
Acute Oral (rat) LD <sub>50</sub>	1,098 mg/Kg	Female rats were selected for the test since they are more sensitive.
Acute Dermal (rat) LD <sub>50</sub>	>2,000 mg/Kg	At this dose rate no mortality was observed, all animals continued to gain body weight, and no clinical abnormalities were observed.
Primary Eye Irritation (rabbit)	Mildly irritating	All animals recovered with no ill effects.
Dermal Sensitisation (mouse)	Not a dermal sensitiser	Product was tested at 100% and applied for three consecutive days.
Acute Inhalation (rat) LC <sub>50</sub>	>5.11 mg/Kg	All animals survived and appeared active and healthy at the end of the exposure period.
Primary Skin Irritation (rabbit)	Slightly irritating	All symptoms cleared after 48 hours.

## UNSTOPPABLE AGAINST HOUSEHOLD INSECTS

In a series of independent laboratory trials, BITHOR DUAL ACTION showed significantly improved performance when compared to a bifenthrin positive control formulation, indicating the synergistic effects of the combined actives. Trial used just thirty minutes exposure periods! Surfaces are timber or glass.

At 90 days BITHOR DUAL ACTION still provided 100% mortality against German cockroaches (*Blattella germanica* Linnaeus), house flies (*Musca domestica* Linnaeus), mosquitoes (*Aedes aegypti* Linnaeus), cat fleas (*Ctenocephalides felis* Bouché) and spiders (*Latrodectus hasselti*, *Badumna insignis*, *Eriophora* spp, *Lycosa godeffroyi*, *Lampona cylindrata* and *Heteropoda* spp).



# BITHOR<sup>®</sup> DUAL ACTION INSECTICIDE

Product	BITHOR DUAL ACTION Insecticide
Actives	45 g/L bifenthrin (pyrethroid) 55 g/L imidacloprid (neonicotinoid)
Pests	Wide variety of household pests including cockroaches, spiders, ants, fleas, flies, mosquitoes, and more....
Formulation	Water-based micro-suspension concentrate
Benefits	Two actives from two totally different chemical groups combine together to create a synergistic effect with each active intensifying the effects of the other, to kill even the toughest pests.

## ENSYSTEX<sup>™</sup>

LEADING INNOVATION IN PEST MANAGEMENT

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