

# ZENITHOR™

## GEL COCKROACH BAIT

### FAST KILL

KILLS ALL SPECIES OF COCKROACHES - MORE THAN 80% OF GERMAN COCKROACHES KILLED WITHIN 24 HOURS.

### NO RESISTANCE

ELIMINATES BAIT AVERSE COCKROACHES.

### ZENITHOR ENZYME-BIOACTIVATION™

BETTER RESULTS AND REDUCED RISKS.

### ZENITHOR VIRAL EXCRETION TRANSFER™

KILLS ALL LIFE-STAGES - HIGHLY EFFECTIVE AGAINST NYMPHAL COCKROACHES.

**ENSYSTEX™**  
THE INNOVATORS

# ZENITHOR™

## A LEGEND EMERGES

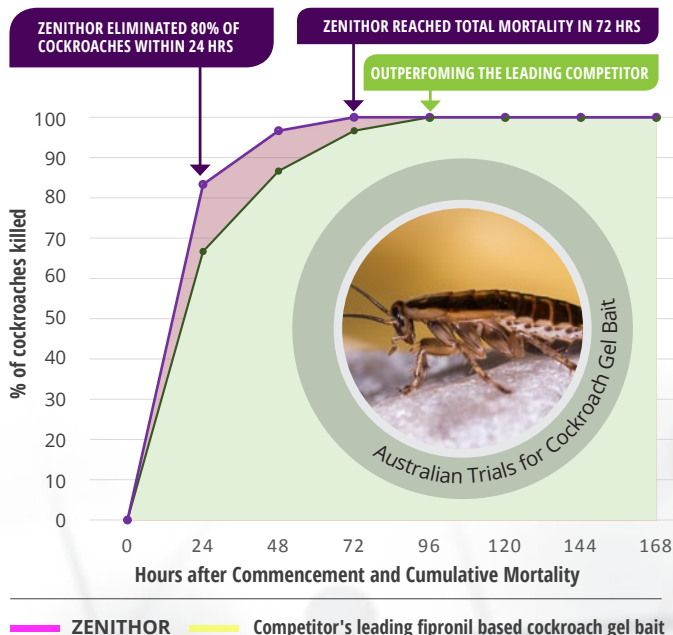
ZENITHOR was developed with the view of creating a legendary cockroach gel bait, a gel bait that outperforms all others.

ZENITHOR's outstanding performance arises from our most complex cockroach gel formulation to date. Employing the most sophisticated gel chemistry, ZENITHOR provides improved physical performance; giving you the functional features you demand in terms of ease of application, with the gel spots staying put, whilst still retaining their high moisture content to provide improved flavour for cockroaches - and longer-lasting results.

But there is even more to this new legend, ZENITHOR introduces more than ten feeding stimulants and sensory attractants to maximise cockroach feeding, deliver faster kill and ensure total elimination of all cockroach aggregates. And with a wide range of active constituents to select from, we carefully managed the selection process to give you the best active ingredient in existence for a cockroach bait.

## ENSURES FASTER KILL

As the below graph shows, in Australian trials with the German cockroach (*Blattella germanica* Linneaus), ZENITHOR killed more than 80% of the cockroaches within 24 hours, and well out-performed the leading fipronil based cockroach gel bait.



## ENHANCED PALATABILITY

To ensure optimal feeding, ZENITHOR's fine dining recipe provides a complete nutrient source including novel ingredients to ensure it is eaten in preference to competing foods in the environment.

Food nutrition greatly affects development and reproduction in cockroaches<sup>1,2</sup>.



In fact, cockroaches have been shown to self-select the nutrients they require to grow optimally, and these needs will change at each nymphal development stage. Cockroaches distinguish food of different nutritional value through a process known as specific nutrient learning. They learn which nutrients their body requires most, and then seek these out<sup>3,4,5</sup>.

The consequences of this are most important in the development of a cockroach bait, since it becomes vital to have a bait that provides a complete and balanced diet containing all the nutrients required by the cockroaches in order to optimise the success of your baiting programs.

ZENITHOR provides carbohydrates, phyto-lipids and proteins to boost palatability. But there is more! ZENITHOR also employs a unique and novel range of natural sensory attractants to draw the cockroaches to the bait spots, together with some carefully selected feeding stimulants.

Feeding stimulants induce and promote increased consumption of ZENITHOR. Understandably the amount of bait eaten at a single feed is very important in a control program, for both speed of kill and secondary transfer of the active ingredient. This determines if sufficient toxicant is consumed to both kill the cockroach and have toxicant available for secondary transfer.

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- Cooper, R.A. and Schal, C. (1992) Effects of protein type and concentration on development and reproduction of the German cockroach, *Blattella germanica*. *Entomologia Experimentalis et Applicata* 63, 123-134.
- Durier, V. and Rivault, C. (2000) Learning and foraging efficiency in German cockroaches, *Blattella germanica* (L.) (Insecta: Dictyoptera). *Animal Cognition* 3, 139-145.
- Raubenheimer, D. and Jones, S.A. (2006) Nutritional imbalance in an extreme generalist omnivore: tolerance and recovery through complementary food selection. *Animal Behaviour* 71, 1253-1262.
- Rivault, C. and Cloarec, A. (1991) Exploitation of food resources by the cockroach *Blattella germanica* in an urban habitat. *Entomologia Experimentalis et Applicata* 61, 149-158.
- Kopanic Jr. R.J., Holbrook, G.L., Sevala, V. and Schal, C. (2001) An adaptive benefit of facultative coprophagy in the German cockroach *Blattella germanica*. *Ecological Entomology* 26, 154-162.
- Silverman, J. and Bieman, D.N. (1993) Glucose aversion in the German cockroach, *Blattella germanica*. *Journal of Insect Physiology* 39, 925-933.



ZENITHOR's feeding stimulants have been carefully combined to greatly improve performance through a process known as *Synergised High-consumption Bait Technology™*.

This effect arises from the use of several unique, natural feeding stimulants that each synergise the effects of the other to improve the amount of ZENITHOR consumed.

Some baits dry and harden after application, making them less palatable to cockroaches. However, ZENITHOR remains moist and palatable to cockroaches for up to three months or more after application.

## ZENITHOR ENZYME BIO-ACTIVATION™

ZENITHOR exploits the cockroach's metabolic processes to provide improved kill with reduced risk. ZENITHOR contains 6.0 g/kg (S)-indoxacarb. Indoxacarb is a non-repellent, oxadiazine insecticide which our research has shown is most effective against insects when it is consumed; making it the ideal active for ZENITHOR.

Following consumption, cockroach enzymes activate the (S)-indoxacarb converting it into a new, highly active insecticide, N-decarbomethoxylated indoxacarb (DCJW). *ZENITHOR Enzyme Bio-activation™* leads to rapid and irreversible impairment of cockroach nerve function, leading to feeding cessation, paralysis, and death.

### Phase 2:

#### ZENITHOR ENZYME BIO-ACTIVATION™

*Following consumption, ZENITHOR is metabolised into a deadly insect neurotoxin.*

The slight delay in cockroach mortality caused by the Enzyme Bio-activation of ZENITHOR allows cockroaches to consume the bait and return to their harbourages to contaminate other cockroaches. ZENITHOR then unleashes a powerful *Viral Excretion Transfer Effect™* of the toxicant that spreads through a cockroach aggregate to quickly eliminate all life-stages.



### Phase 3: VIRAL EXCRETION TRANSFER™

## ZENITHOR VIRAL EXCRETION TRANSFER™

The ZENITHOR intoxicated cockroaches contaminate their harbourages and the surrounding environment with ZENITHOR-enriched vomitus and faeces to create the most potent Transfer Effect. *ZENITHOR Viral Excretion Transfer™* is critical for passing the toxicant on to the more sedentary life stages, specifically early instar nymphs, that do not venture far for their food resources.

In the natural cockroach environment, **coprophagy**, the consumption of faeces together with proctodeal feeding, allows the transfer of hindgut symbionts, nutrients, and microbes and their by-products through the ingestion of excreted faecal materials. Coprophagy occurs in all life stages, but is most prominent in early instar nymphs<sup>6</sup>. In fact, newly hatched German cockroach nymphs without access to adult faeces died 60-fold faster than those given adult faeces.

For newly hatched nymphs, coprophagy reduces the risk of long-range food searching when food is not available in the harbourage. This behaviour allows them to gain nutrients needed for their growth into second instar nymphs. ZENITHOR is highly stable during passage through the cockroach digestive tract, and slow acting enough to allow its excretion before cockroach death. This is crucial since about 6 - 12 hours is required for insecticide baits to be defecated.

In contrast, **emetophagy**, or the ingestion of vomitus, is not essential for nymphal survival, but cockroach nymphs really love to feed on female vomitus. It's like ice cream for cockroaches! ZENITHOR has therefore been formulated to induce cockroach vomiting. This occurs about 4 - 6 hours after ingestion to coincide with their return to the harbourage. Cockroach vomitus containing ZENITHOR is both very attractive and toxic.

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### THE ZENITH OF COCKROACH COLONY CONTROL

<b>Active constituent:</b>	6.0 g/kg INDOXACARB (an oxadiazine insecticide)
<b>Formulation type:</b>	Gel cockroach bait.
<b>Eliminates bait adverse cockroaches:</b>	<p>It is well documented that populations of the German cockroach have rapidly evolved an adaptive behavioural aversion to glucose, a component of most commercial baits. Glucose aversion is an inherited trait and not a learned trait <sup>7</sup>.</p> <p>ZENITHOR does not use glucose in the formulation, so ZENITHOR can effectively tackle the toughest cockroach jobs</p>
<b>Superior gel properties:</b>	ZENITHOR Gel Cockroach Bait has been formulated to provide a stable gel, even in hot kitchens and tropical environments, whilst retaining a moist, viscous presentation at all times to ensure superior consumption by cockroaches for an extended time frame.
<b>Easy to apply:</b>	<p>It is also easily dispensed from the handy-to-use syringe from which, upon application, it forms a homogenous 'bubble' that maintains its shape and does not dissolve into the substrate like many gels, thus ensuring prolonged availability for consumption.</p> <p>This is due to the intricate formulation process that creates a superior gel which locks in the moisture within the gel.</p>
<b>Unique, Synergised High-consumption Bait Technology™</b>	Enhanced palatability due to wide-range of synergistic sensory attractants and feeding stimulants, means better results.
<b>Non-repellent Chemistry</b>	Enhances performance.
<b>Use anywhere</b>	Approved for use in Commercial, Industrial and Residential Buildings including food processing premises. ALWAYS read the product label for complete details of product use.

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