The ALTRISET termite control timeline

	WITHIN HOURS	WITHIN DAYS	WITHIN 90 DAYS
Primary Exposure	Stops Termites Feeding	ALTRISET Spreads Through Colony	Paralysis and Death
Termites come into contact with ALTRISET. They walk through it, ingest it and carry it on their bodies. They cannot taste or smell it. Direct treatment via foaming and soil contact.	Within the first 1-4 hours, their mouths become paralysed and they stop feeding. There is no further damage to the home. For larger termites such as *Mastotermes* it can take 4-8 hours.	For the next few days, termites continue to groom and interact with other termites spreading ALTRISET to other members of the colony and back to the nest.	Over time, movement decreases and the termites are paralysed and die. ALTRISET eliminated termites from structures within 90 days when used in accordance with the label.

ALTRISET termite treatment protocol

We all know that termite control is not an easy process and requires thorough inspections and treatments by qualified timber pest control professionals using appropriate equipment and innovative products to ensure the control and elimination of termites is achieved.

We understand the challenges you face as a pest management professional. We are committed to working with you to find effective solutions to these challenges. ALTRISET safeguards your staff, your customers and your business.

FOR LIFE UNINTERRUPTED™

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To learn more about ALTRISET Termiticide, contact Syngenta Professional Pest Management on 1800 022 035 or visit www.syngenta.com.au

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PROFESSIONAL PEST MANAGEMENT

SAFEGUARDING YOUR STAFF, YOUR CUSTOMERS AND YOUR BUSINESS

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There was a hole in the termite control industry. We've filled it.

- Rapid stop feeding mechanism
- Eliminated termites from structures within 90 days
- Long term protection
- Outstanding termite colony transfer properties
- Exempt from poison scheduling

No other termite product can offer all these features. With world-class performance and a favourable safety and environmental profile, ALTRISET is the solution the termite industry has been waiting for.

This brochure will provide you with the science behind the greatest innovation in termite control in Australia in over 10 years.

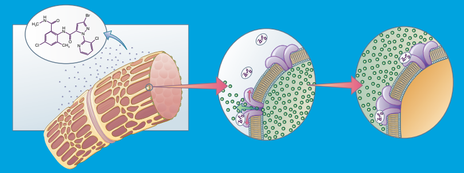
Laboratory and field study results prove ALTRISET stops termites feeding within hours, while delayed mortality allows increased termiticide transfer to provide complete termite elimination, critical to long term structural protection. This is reassuring as no further structural damage will occur and the source of the problem is removed. Even better, the physical/chemical properties of ALTRISET enable it to remain in the soil for an extended period, providing years of continuous protection.

ALTRISET is also the only liquid termiticide that has been exempt from poison scheduling by the Australian regulatory authorities making it the ideal product for use indoors and subfloors.

What makes ALTRISET different?

The class of chemistry to which chlorantraniliprole (the active ingredient in ALTRISET) belongs was inspired by the insecticidal properties of a natural substance found in the trees and shrubs of the *Ryania* spp. It targets the insect muscles (other liquid termiticides affect the nervous system) as is shown in the diagram below.

ALTRISET mode of action



Phase 1 Exposure
Insect comes in contact with or ingests chlorantraniliprole the active ingredient in ALTRISET.

Phase 2 Activation
Chlorantraniliprole binds to and activates the ryanodine receptors located in the insect's muscles, and causes them to open.

Phase 3 Paralysis and Death
Calcium ions flow out of the open ryanodine receptors, depleting calcium needed for muscle contraction. Paralysis of the insect muscles leads to death.



Low toxicity

The targeted, unique mode of action of ALTRISET means it has a very low toxicity to mammals, birds, fish earthworms and even honeybees.

Chlorantraniliprolehas an extremely low toxicity as the graph below illustrates. This is primarily due to the unique mode of action and the fact that only certain insect muscles are sensitive to and targeted by, its activity.

Higher values mean lower toxicity

Oral Toxicity of Rats (Mammals)

Quick reference

Active ingredient: Chlorantraniliprole
Dilution rate: 1 L makes 400 L
Application rate: 0.05% strength

The evidence worth chewing over

Studies have proven that ALTRISET is highly effective against termites, stopping them feeding within hours, which prevents any further damage to the property that is infested.

Laboratory tests have shown that termites tunnel through the treated zone and quickly acquire a lethal dose of ALTRISET. Once affected by ALTRISET, termites will begin to exhibit increased aggregation, enhanced grooming and contact with other colony members for hours.

Affected termites will become more lethargic and show signs of muscle paralysis; decreased coordination and mortality will ultimately occur within several days. The delayed mortality and increased colony interaction are key reasons why ALTRISET is so effective.

This picture illustrates a termite worker that tunnelled through sand treated with ALTRISET at 0.05%. The worker "picked up" and ingested large amounts of the active ingredient as evidenced by the glowing areas.

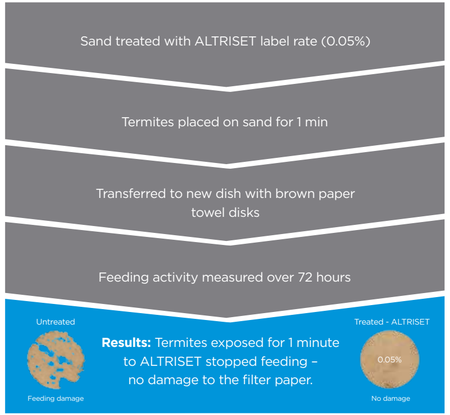
The high concentration of chlorantraniliprole on the mandibles of the termite causes the feeding cessation. Chlorantraniliprole on the cuticles of the termite is readily passed to other termites through contact and grooming.

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ALTRISET stops termites feeding within hours

The study illustrates that within 72 hours, after only 1 minute exposure to ALTRISET, termites are unable to feed.

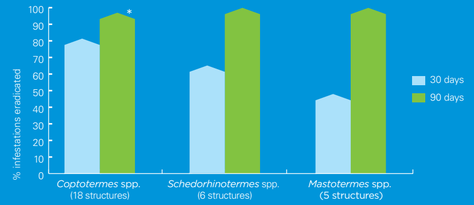


Source: Stine-Haskell Reserach (DuPont). *Reticulitermes flavipes*

ALTRISET eliminated termites from structures in 3 months

Results in the following graph are from Australian home trials. All treatments were soil/perimeter treatments only – no direct treatment of active termites.

Speed of control by termite species



*100% control was not achieved in one house in WA within 90 days, due to a construction design that did not allow a complete barrier treatment to be applied.

Source: DuPont trials in conjunction with various pest management companies (2009–10).

Outstanding transfer properties for termite colony control

It is not always possible to locate termite nests so direct treatment of nests is not possible. Termites exposed to ALTRISET don't die immediately and are able to transfer the active ingredient to other termites and back to the nest leading to a greater chance of complete termite colony elimination.

Aggregation effect

ALTRISET affects mobility and increases aggregation. This delayed mortality and increased social contact accelerates transfer throughout the colony.



0.01% (1/5th of label rate) ALTRISET: Termites begin to group and become more social.

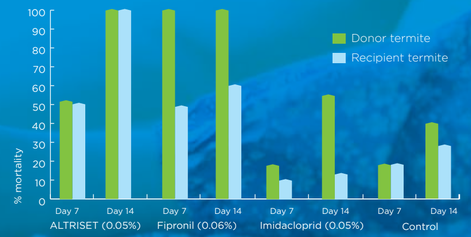
Untreated: Termites are 'independent' and moving freely within petri dish.

Conclusion: Even at 0.01% ALTRISET exhibits unique behavioural effects on termites. After exposure, termites aggregate, increasing the social interaction among termites. This leads to increased chance of sharing ALTRISET with unexposed nest mates and more comprehensive management.

NOTE: Not all the termites in the untreated group can be seen because they are hiding from the light under the filter paper, which is natural behaviour for untreated termites.

Source: Stine-Haskell Research (DuPont). *Reticulitermes flavipes*

Transfer of non-repellent termiticides from termites exposed to treated soil



Note: Fipronil and Imidacloprid are the active ingredients in a number of termiticides

Conclusion: ALTRISET is transferred readily from donor termites (exposed to termiticide) to recipient termites (not exposed to termiticide), resulting in 100% mortality of all termites within 14 days.

Fipronil shows faster mortality than ALTRISET with 100% mortality of donor termites within 7 days. However, only 60% of recipient termites are killed after 14 days suggesting that the fast action/transfer properties of fipronil are not as effective as ALTRISET. Imidacloprid gave low levels of mortality and provided no evidence on termiticide transfer.

Source: Stine-Haskell Research (DuPont). *R. virginicus.*

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Australian Field Trials

Field trials are completed as part of the registration process and provide an indication of the residual properties of termiticides.

The standard protocols are:

Vertical uncovered treatment – a stake in the ground
The termiticide is mixed with soil (similar to a trench treatment). This treatment is uncovered in an exposed location representing the worst case conditions. A wooden stake is placed in the middle of the treated soil.



Vertical uncovered site



Treated and untreated wood damage

Horizontal covered treatment – wood under slab
The termiticide is sprayed on the surface of soil. A piece of wood is then placed on the soil and then covered with a moisture barrier and a concrete slab. This is similar to injecting under a slab, although the placement of wood between the soil and slab is not representative of normal structural situations.



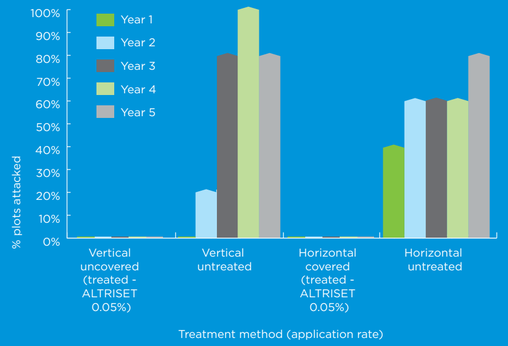
The wood in ALTRISET treated plots remains intact



The wood in untreated plots is completely "eaten out"- only the mudding remains

Gosford field trial

ALTRISET termiticide was challenged under these protocols in a trial in Gosford (NSW). The performance of ALTRISET at the Gosford field site was excellent, with both high and low doses delivering 100% protection in horizontal and vertical treatments after 5 years (see graph). Although the termite pressure in the first 2 years was relatively low, the high pressure in years 3, 4 and 5 (due to environmental conditions) provided a stern test.



Source: Agrisearch Service Pty Ltd, Gosford, NSW

Product of choice for indoors and subfloors

ALTRISET is designed for use inside and outside all structures. Additionally, given ALTRISET is the only termite protection product that is exempt from poison scheduling, it is the ideal product to use in confined spaces such as subfloors.

Personal Protective Equipment is not required with ALTRISET. No odour and no skin irritation means an improved experience for the applicator. Your clients will also be more reassured knowing that you are using a product exempt from poison scheduling inside their home or business.

Products/ Active	Eye Protection & Face Mask	Nitrile Gloves	Respirator	Overalls	Washable Hat
ALTRISET	No	No	No	No	No
Imidacloprid	Yes	Yes	No	Yes	Yes
Fipronil	Yes	Yes	Yes	Yes	Yes
Bifenthrin	Yes	Yes	Yes	Yes	Yes

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