



WARDEN[®]
RESIDUAL TERMITICIDE
Guide for PCO's.



ADAMA
Simply. Grow. Together.



Warden® Residual Termiticide

WARDEN® is a residual termiticide containing 100 g/L fipronil. When used in accordance with the directions on the label, this product provides effective prevention and/or control of subterranean termites. This product must be applied in a manner which provides a continuous treated zone to effectively prevent termites from infesting wood. This product is a highly effective termiticide against a variety of subterranean termites including species of *Coptotermes*, *Mastotermes* and *Schedorhinotermes* giving 8 years protection.

Key Benefits

- Quality formulation developed and backed by Adama and Control Solutions Inc.
- Water based, suspension formulation
- Termite protection claim for 8 years
- Non repellent chemistry
- Pest Control specific product and formulation
- Multiple pack sizes available in 2.5 L and 5 L pack sizes.

Mode of Action

GROUP 2B INSECTICIDE

Fipronil, the active ingredient in WARDEN® is a disruptor of the insect central nervous system via the GABA channel, acting with contact and ingestion action. It blocks the GABA-gated chloride channels of neurons in the central nervous system preventing chloride uptake. Due to the excess chloride, neural overstimulation occurs preventing feeding with eventual death of the target insect resulting.

Key Application Information

To protect both new and existing buildings, treated zones may be installed using a combination of conventional spraying and trenching. Spray equipment should be calibrated to deliver a low-pressure high volume coarse spray. It is recommended the minimum thickness of any treated soil treated zone is 80 mm. Treated zones that have been disturbed by construction, excavation and other soil disturbing activities will need re-application to restore site to original condition. You must ensure that all your equipment has been cleaned thoroughly especially after use with a repellent product.



Application of Warden®

Horizontal Treated Zones

Horizontal treated zones are applied to deter termites from gaining concealed vertical access to the building sub-structure. Horizontal treated zones should cover all areas of soil beneath suspended floors where there is inadequate access or where there is less than 400 mm clearance. The treated zone should also be continuous beneath a concrete slab-on-ground or on fill. The treated zone should surround any connection between the building and the soil and completely abut any internal vertical treated zone around any substructure. Otherwise install perimeter treated zones around each individual pier, stump, penetration point and sub-structure wall.

Horizontal treated zones must be a minimum depth of 80 mm. It may be necessary to loosen the soil to allow spray solution to percolate around the treated zone; the soil should be scarified to a depth between 50 - 80 mm. Apply 5 L of prepared WARDEN® spray per square metre of soil.

When termiticide needs to be injected through a concrete slab to create a horizontal treated zone, suitable equipment should be used to inject termiticide through pre-drilled holes. Uneven distribution of termiticide is likely when applying by this method under the slab, the application volume should be increased per square metre up to 10 L of spray solution.

To ensure an even treated zone is created, it is also recommended that maximum drill spacings and minimum application volumes be consistent with the following table be adopted. Use a slab injector fitted with a multi-directional tip. When applying through such structures, the rod should be held vertically at 90 degrees to the slab and rotated during application. Ensure a strong seal with the top of the drill hole to minimise leakage and that drill holes are plugged after treatment.

Foam Applications

Construction practices, soil subsidence under concrete slabs and other factors may create situations where a continuous horizontal treated zone cannot be achieved using conventional liquid treatments alone. In such situations conventional liquid application methods can be supplemented through the use of foam generating equipment. If sufficient foam volumes cannot be applied to achieve the recommended rate of WARDEN® required, apply additional prepared liquid solution to ensure the correct amount of active ingredient is present per square metre of area treated.



Vertical Treated Zones

Vertical treated zones are designed to deter termites from gaining concealed horizontal access to a building or structure. Apply at least 100 L of prepared spray per cubic metre of soil. Vertical treated zones should be a minimum of 150 mm wide and applied to a depth 50 mm below the top of the footing. Where a horizontal treated zone is installed, the vertical treated zone should be installed to be continuous with it. The most effective method of creating an even and continuous treated zone is by trenching and treating the soil as it is back-filled. Soil injection equipment (rodding) must only be used where trenching and treating the back-fill is not possible or practical.

Trenching

Excavating a trench, treating the exposed trench, back filling and treating the back-fill is the preferred method of installing a vertical treated zone. The trench needs to be a minimum of 150 mm wide and continue to at least 50 mm below the top of the footing. Assuming a 150 mm wide trench with a 300 mm distance to the top of the footing, this would equate to a 150 mm x 350 mm trench in which 5.25 L of prepared spray would be applied per lineal metre of trench. Any variation of dimensions needs to be re-calculated on the basis of applying 100 L of prepared spray per cubic metre of soil.

Rodding Through Concrete

When applying a vertical treated zone underneath a concrete obstruction (e.g. a path), a soil rod with a 3 or 4 way multi-directional tip should be used. The rod should be rotated during application (90 degrees for a 4-way tip and 120 degrees for a 3-way tip). The tip should be inserted down as close to the footing as possible to ensure a complete vertical treated zone. Ensure that chemical is applied during insertion and withdrawal of the rod. As uneven distribution of termiticide is likely when applying by this method under concrete, the application volume should be increased to 200 L spray solution per cubic metre of soil. Rod spacing should not exceed 200 mm and application volume should be adjusted depending on soil type (as indicated in the table below) and the depth of the footing. Assuming a 300 mm depth to the top of the footing and 200 mm spaced holes, 2 L of prepared spray is to be applied per hole. Any variation of dimensions needs to be re-calculated on the basis of applying 200 L of prepared spray per cubic metre of soil.

External Perimeter Treated Zones

An external perimeter treated zone should be a minimum of 150 mm wide, a minimum of 80 mm deep and extend not less than 50 mm below the lowest point where the construction below ground could allow concealed termite ingress (or not less than 50 mm below the top of the footing where the building fabric could allow concealed termite ingress). Application considerations should reflect the installation of vertical treated zones.



Application continued

PESTS	SITUATION	RATE	CRITICAL COMMENTS
Subterranean termites including (but not limited to) <i>Coptotermes acinaciformis</i> , <i>Mastotermes darwiniensis</i> , <i>Schedorhinotermes</i> spp.	Pre and Post Construction: Chemical soil treated zones under and around new buildings and structures	600 mL in 100 L water (0.06% a.i. mix)	<p>Application by LICENSED PEST CONTROL OPERATORS: Mix the required quantity of WARDEN® with the specified volume of water. Apply to form a continuous chemical treated zone (horizontal and vertical or as an external perimeter) around and under the structure to be protected as per AS3660.1 for pre-construction or AS3660.2 for post-construction treatment.</p> <p>Create a treated zone by using a combination of conventional spraying and trenching or an approved reticulation system as listed below. Soil injection equipment (rodding) must only be used where trenching and treating the backfill is not possible or practical.</p> <p>Pre-construction: Immediately following treatment, the moisture resistant membrane should be positioned over the treated zone to prevent disturbance.</p> <p>Post-construction: Application of chemical treated zones beneath concrete slabs and paths will require drilling and injection of termiticide using rodding equipment. Construction practices, soil subsidence, difficult to wet soils and other factors may create situations where the use of non-ionic wetting agents or foam generating equipment may be useful. Chemical treated zones that have been disturbed will need to be re-treated to restore the complete treated zone. For more details refer to GENERAL INSTRUCTIONS on the label.</p> <p>Reticulation systems: Pre and Post-construction (Camilleri Underslab and perimeter system. ReTerM™ and Altis perimeter systems only)</p> <p>Application by LICENSED PEST CONTROL OPERATORS: The system must be installed according to the manufacturer's specifications and be capable of distributing the termiticide emulsion according to this label (See General Instructions) and the Australian Standard AS 3660 series.</p> <p>Mix the required quantity of WARDEN® 100SC with the specified volume of water. Apply by pumping through the system according to the manufacturer's specifications. Use a minimum delivery volume of 100 L of emulsion per cubic meter of appropriate soil (e.g. evenly compacted sandy loam soil).</p> <p>Delivery pipes must be placed in such a position to ensure that the requirements for both horizontal and vertical treated zones as specified in the Australian Standard AS 3660 series are met. Special attention must also be afforded to the positioning of the delivery pipes to ensure that the resultant treated zone is continuous and complete.</p>

PESTS	SITUATION	RATE	CRITICAL COMMENTS
Subterranean termites including (but not limited to) <i>Coptotermes acinaciformis</i> , <i>Mastotermes darwiniensis</i> , <i>Schedorhinotermes</i> spp.	Protection of poles and fence posts	600 mL in 100 L water (0.06% a.i. mix)	<p>Application by LICENSED PEST CONTROL OPERATORS: Only posts and poles in contact with soil need to be treated.</p> <p>For existing posts and poles create a continuous WARDEN® treated zone 450 mm deep and 150 mm wide around the post or pole by trenching and puddle treating the back-fill. Soil injection equipment (rodding) must only be used where trenching and treating the backfill is not possible or practical.</p> <p>Use 100 L of prepared spray per cubic metre of soil around the pole or post.</p> <p>Note it is impossible to treat soil at the bottom of a sound post or pole so future attack via this route cannot be ruled out.</p> <p>If new posts or poles are being installed, the bottom of the hole and the back-fill should be treated at installation.</p>
	Nests in poles and trees	600 mL in 100 L water (0.06% a.i. mix)	<p>Application by LICENSED PEST CONTROL OPERATORS: Locate the nest by drilling holes into the pole or tree. Ensure the full dimension of the nest is known, particularly the highest extremity. Flood the nest with prepared WARDEN® spray. Volume will vary depending on the nest size.</p> <p>To aid distribution throughout the nest or in areas of difficult access, the use of foam generating equipment may be useful. Drill holes should be sealed after treatment.</p> <p>Do not treat trees bearing edible fruit or nuts.</p>
	Wall cavity treatment	6 mL in 1 L of water	<p>Application by LICENSED PEST CONTROL OPERATORS: Mix the required volume of WARDEN® in water plus foaming agent to achieve a final foam expansion ratio of 15:1. Locate the termite activity by drilling holes into the wall cavity.</p> <p>Foam directly into the termite carton material until saturated. Application to wall cavities behind plasterboard may result in some staining.</p> <p>Only apply to wall cavities where live termites are present.</p> <p>WARDEN® foaming is not designed and should not be used as a stand-alone treatment. Accordingly, a continuous chemical treatment applied to the soil as per Australian Standard AS 3660.2 should be applied immediately following successful eradication of termite activity in the structure.</p>



Termite Social Structure



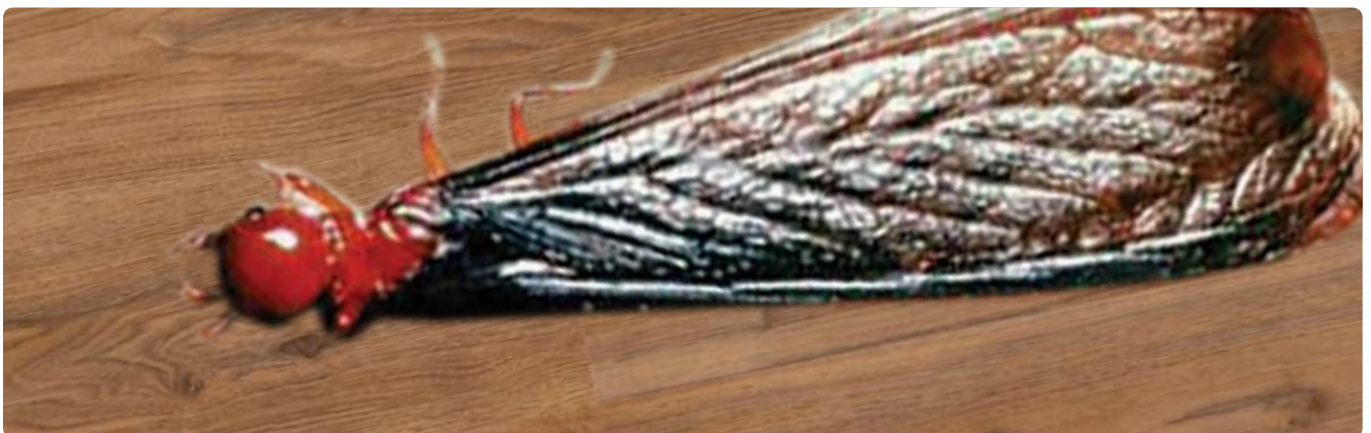
Workers:

The workers make up the largest number within a colony. They do all of the physical work such as feeding, grooming, excavating the nest and making tunnels. These termites cause the destruction that effects properties.



Soldiers:

Soldiers defend the colony against attack by predatory enemies such as ants, and are equipped with large jaws, sticky fluids or chemical spray to help defend the nest.



Alates:

Alates are the winged reproductive termites that swarm out from the nest and establish new colonies. Male and females pair off and look for a suitable environment to mate. It is common to see swarms in the warmer months and before rain.

Common Termite Species



Coptotermes acinaciformis:

This is the most destructive termite species in Australia and is present over the entire Australian mainland.



Coptotermes frenchi:

Very destructive in its own right but causes less damaged to established properties as they are mainly a green forest pest.



Mastotermes darwiniensis:

Three times larger than other species the common name is giant northern termite or Darwin termite and is only found in northern Australia. It is considered the most aggressive and destructive termite in the world.



Cryptotermes primus:

The native drywood termite which is relatively widespread and common in the sapwood of house stumps.



Common Termite Species



***Cryptotermes brevis* (introduced):**

The most widespread drywood termite in the tropics worldwide and they live entirely within the wood and usually only infect structural timber.



***Heterotermes ferox*:**

Often encountered attacking posts, poles, paling fences, timber decking and flooring of properties wherever weathering and decay are present. *Heterotermes ferox* is widely distributed throughout Australia, but fortunately does not range far from its small colonies.



***Schedorhinotermes intermedius*:**

They are multi-site nesters whose nests may be difficult to locate as they are subterranean. Occurring coastally from southern Queensland through to New South Wales, they tend to nest in tree stumps and in the root crown area of living, dead and debilitated trees as well as in timber buried in the ground and under properties.



***Natsutitermes fumigatus*:**

They have small colonies and tend to attack decaying wood in contact with ground. Where decay has occurred to flooring timbers due to moisture they will damage the wood and will also attack moist and weathered decking on outside verandahs.



Natsutitermes walkeri:

A common species that nests in coastal bushland from Cairns to Sydney and forms distinctive round ball-shaped nests that are especially abundant in the years following major bushfires (as it mainly nests in stressed trees). It can also damage fences, poles and wood on the ground, but it rarely attacks buildings.



Typical Termite Damage



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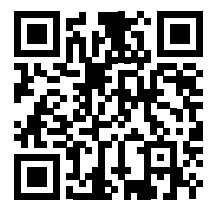
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