



ENSYSTEX AUSTRALASIA PTY LTD

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CAUTION
KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING

PROTHOR™ 200 SC TERMITICIDE



ACTIVE CONSTITUENT: 200 g/L IMIDACLOPRID

For use in the management of subterranean and drywood termites as Specified in the Directions for Use Table.

IMPORTANT:
READ THIS BOOKLET BEFORE USE

ENSYSTEX AUSTRALASIA PTY LTD

ABN 53 102 221 965
Unit 3 The Junction Estate,
4-6 Junction Street Auburn,
NSW 2144

www.ensystex.com.au

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APVMA Approval No: 60558/56005

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DIRECTIONS FOR USE (all States except Tasmania)

RESTRAINTS

DO NOT apply to soils if excessively wet or immediately after heavy rain to avoid run-off of chemical.

DO NOT disturb the treated soil zone with subsequent construction of additions or alterations, paths, steps, flower beds, etc.

DO NOT use this product at less than indicated label rates.

DO NOT use in cavity walls except for direct treatment of a nest or when applied with a foaming agent, as a dry foam, direct to any other termite activity.

Situation	Pest	Rate	Critical Comments
Existing buildings: Protective treatments for existing buildings including domestic, industrial, government and commercial premises.		Spray solution mixing rate	(See also General Instructions) Mix the required quantity of PROTHOR in water and apply using suitable application equipment to form a complete and continuous barrier around and under the structure to be protected as per AS3660.2. The barrier may be created using a combination of conventional spraying and trenching along with soil rodding. Soil injection equipment (rodding) should only be used where trenching and treating the backfill is not possible. Refer also to notes on recommended best practice in GENERAL INSTRUCTIONS.
New Buildings*: External protective treatments (only) around new buildings.	Subterranean termites (except <i>Mastotermes darwiniensis</i>)	250 mL per 100 litres of water	Perimeter Treatments: If the building construction is slab-on-ground and the slab is regarded as an intact termite barrier then a PROTHOR perimeter treatment around the outside of the structure may be employed. PROTHOR perimeter treatments should be complete vertical barrier-type treatments in accordance with Australian Standard AS3660.2 to the external perimeter of the structure. Concrete paths around the structure should be drilled and injected with PROTHOR solution in order to establish the PROTHOR perimeter vertical barrier-type treated zone at the rates prescribed in the general instructions. If there is any doubt that the slab is not or cannot be determined to be an intact barrier or if the building has a suspended floor then additional horizontal barrier-type treatments should be employed where termites have vertical access to the structure. As such expansion joints, cracks in concrete foundation slabs and pilings should be protected with horizontal barrier rates. In some cases the use of wetting agents or foaming agents may be useful in overcoming non-wetting soils or getting a more even application in areas of difficult access or soil subsidence. If the barrier is disturbed by earthworks, construction or severe drainage problems it will have to be restored by reapplication. * CONDITIONS APPLY IN QUEENSLAND FOR THE APPLICATION OF BARRIER TREATMENTS TO NEW BUILDINGS
	<i>Mastotermes darwiniensis</i>	500 mL per 100 litres of water	
Service poles and fence posts		Spray solution mixing rate	New posts: treat the bottom of the hole and the backfill using a minimum of 10 L of solution per hole. Existing posts: create a continuous barrier 150 mm wide by soil rodding or spraying the backfilled soil to a depth of 450 mm. Infested posts may also be drilled and injected with spray solution. Note that it is impossible to treat the soil at the bottom of a sound post so future termite attack from below the treated area cannot be ruled out.
Nests in wall cavities, poles, stumps, posts, mounds and trees	Subterranean termites (except <i>Mastotermes darwiniensis</i>)	250 mL per 100 litres of water	Locate the nest by drilling holes into the wall, pole or tree. Ensure that the full size of the nest is identified especially the highest point. Apply at least 20 litres of diluted PROTHOR into the nest through the drill holes. Drill holes should be sealed after application. Note application to wall cavities behind plasterboard may result in water/mud staining of the plasterboard. Use of a dry foam applicator can reduce this risk and improve distribution within the wall cavity. Do NOT apply in the vicinity of live electrical wires. When using foam to inject into nests in trees and other situations it is still important to ensure that the approximate centre of the nest is located and that every effort is taken to ensure that termiticide reaches this area. In many situations cavities may form around a nest within a tree and foam may therefore expand to only fill this cavity if not injected to the correct depth within the tree which corresponds with the nest itself.
	<i>Mastotermes darwiniensis</i>	500 mL per 100 litres of water	
Termites when nest location not known (e.g. active workings in timber in-service, infested wall cavities and external infested timber situations)	Termites including subterranean termites (e.g. <i>Coptotermes</i> spp., <i>Schedorhinotermes</i> spp.) and drywood termites	Spray solution 12.5 mL/ 5L water	Apply only in conjunction with a suitable foaming agent which is capable of delivering a dry foam. (A dry foam is considered to be a foam with an expansion ratio of 1:20 or greater). Foaming agents which have been demonstrated to be non-repellent to termites (e.g. ProFoam) are recommended. Drill holes into infested wood and inject foam. Progressively drill and inject. Care should be taken not to drill holes too close together or foam will emerge from other holes. It is recommended that drill holes be taped over when not in use. When applied into a termite gallery system or into a termite infested void the foam expands to thoroughly cover hidden or difficult to reach areas and contacts insects deep within these galleries and voids. Care should be taken to minimise expansion run-off of foam out of application equipment after use. DO NOT use this type of application as the sole source of control for active, structural infestations by subterranean termites. It is not a substitute for mechanical alteration or soil treatments designed to provide protection of the structure. For active structural infestations by subterranean termites, this application method should only be used to supplement an application of PROTHOR to the soil, a termite bait system or other product registered as a sole source for termite management. This application technique is intended as a supplemental tool to kill subterranean termites that are found in above-ground and other locations.
Reticulation systems:		Spray solution mixing rate	The reticulation system (refer to the General Instructions) must be installed according to the manufacturer's specifications. PROTHOR must only be applied via a reticulation system that has been installed with a prepared sand/soil bed of a minimum depth of 100 mm and even compaction. If this is not possible, alternative termite protection should be arranged for these areas (see General Instructions for further system requirements).
Perimeter and/or service penetration treatment	Subterranean termites (except <i>Mastotermes darwiniensis</i>)	250 mL per 100 litres of water	The reticulation system installer must ensure that the installation will result in the application of not less than 250 mL (500 mL for <i>Mastotermes darwiniensis</i>) of product per m ² of soil, applied in a continuous treated zone not less than 100 mm thick. The volume of soil treated and diluted solution applied by a reticulation system is dependent on both the parameters of the particular system and the type of soil present respectively. Guidelines should be sought from the reticulation system manufacturer. For a barrier with dimensions of 300 mm deep x 150 mm wide, 5 L per linear metre is suitable for perimeter and/or service penetration only systems. This rate should be adjusted for systems treating a different volume of soil.
Complete under slab installations	<i>Mastotermes darwiniensis</i>	500 mL per 100 litres of water	For the horizontal barrier-type treated zone under the slab, not less than 20 mL (40 mL for <i>Mastotermes darwiniensis</i>) product should be applied per m ² . In addition the reticulation system installer must ensure that a prepared sand/soil bed of 100 mm depth is provided across the whole of the underslab installation to ensure complete horizontal coverage with the diluted product.

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

GENERAL INSTRUCTIONS

PROTHOR should be considered as part of a program involving the following steps:

1. Locate nest and treat where possible.
2. Repair or recommend repairs to leaks and drainage as a condition of warranty.
3. Improve or recommend improvements to ventilation underneath structures.
4. Ensure or recommend subfloor areas be kept free of stored or waste timber.
5. Application of PROTHOR treated zone to soil.
6. Advice to property owner or manager, that disturbing the soil treated zone eg with subsequent additions, alterations or landscaping etc, may render the treatment ineffective unless reapplied or other actions undertaken.
7. Continuing efforts to locate and treat the colony in the nest if not eliminated before application of soil treated zone.
8. Post-treatment inspection to confirm successful treatment.
9. Ongoing inspections, at least annually, as recommended by AS-3660 Series.

The purpose of a non-repellent chemical soil treatment for termite control is to establish a continuous chemical treated zone (horizontal and/or vertical as required) between the structure and termite colonies in the soil. The treated zone impedes and discourages concealed termite entry for the service period. A great deal of care needs to be taken to understand the construction of the building and to apply the spray solution in a manner which ensures a complete treated zone. If the treated zone is not complete or is breached, then concealed termite entry may occur. It is sometimes not possible to form a complete treated zone around an existing structure. In these cases other termite management options and/or more frequent inspections will be required.

Alterations to buildings to increase effectiveness of treatments

Alterations include improvements to drainage and sub-floor ventilation, the removal of soil-timber contact eg railway sleeper retaining walls, and the provision of access to areas for regular inspection. Poor drainage including rainwater flowing around structure perimeter may compromise the soil treated zone. Drainage, ventilation and timber/soil contact problems need to be addressed before treatment.

MIXING

To ensure good mixing:

1. Thoroughly clean the spray equipment to remove residues of other formulations from the equipment before using PROTHOR for the first time; and
2. Prior to pouring, shake container vigorously. Then premix the required quantity of PROTHOR with water in a clean bucket before adding it to the half filled spray tank then top up to full volume. Allow the contents of the tank to be re-circulated. Note that at the recommended dilution rate PROTHOR will usually dissolve to a clear solution with only a faint odour.

SOIL PREPARATION

Some soils will be difficult to wet (e.g. heavy clay soils) and there will be a greater chance of run-off of liquid from the surface; in these situations it will be necessary to loosen the soil to allow spray solution to percolate to form the treated zone; the soil should be scarified to a depth of at least 80 mm for horizontal barrier-type treatments and below the top of the footing for vertical barrier-type treatments, creating a trench to confine the spray solution to the area to be treated.

In situations with very heavy soils the complete removal and replacement of the soil with a loam type is recommended in order to form the treated zone. Sandy soils or those based on decomposed granite (i.e. soils with very low organic matter) should not be used as the replacement material since it is unlikely that optimal residual activity will occur.

In situations where the surface of the soil is very dry or with sandy or porous soils it may be necessary to moisten the soil prior to application of the chemical to prevent loss through piping or excessive percolation. Soil rodding in heavy clay soil can result in uneven distribution of chemical; the preferred method of installing a treated zone under such circumstances is to trench and backfill (and consider the replacement of soil if necessary).

It is recommended that application volumes given in the Directions for Use table be used wherever possible. However where soil conditions will not accept application of 100 L/m³, the concentration of PROTHOR in the solution should be doubled to 500-1000 mL per 100 L and then apply 50 L/m³ spray solution. When applying by injection through concrete to such soils, drill hole spacing should be reduced to 150 mm (1.5 litres per hole) before resorting to the application of higher concentrations in lower volumes.

TREATMENT OF EXISTING BUILDINGS

Persons applying PROTHOR 200 SC Termiticide should be familiar with the Australian Standard AS 3660 Series, especially the section which specifies the procedures used to provide a chemical soil barrier and/or the appendix which shows the areas where barrier treatments should be applied to ensure no gaps in the treatment.

TREATMENT OF NEW BUILDINGS

PROTHOR 200 SC Termiticide cannot be used for the application of horizontal barrier-type treated zones prior to pouring a slab unless used in a reticulation system certified for that purpose. The initial under slab treatment shall be applied through the reticulation system as soon as possible after the placement of the slab, and not more than 60 days after placement.

RETICULATION SYSTEMS

The reticulation system must be certified and be capable of establishing and maintaining complete and continuous treated zones around building perimeters, service penetrations and other possible termite entry points between the structure and the termite colonies in the soil according to the product label and the Australian Standard AS 3660 Series. Reticulation systems suitable for this purpose are certified as meeting AS3660 by suitable persons or organisations with the relevant expertise in the area of termite management and engineering construction. The system must allow the application of a minimum 100 mm thick treated zone.

It is strongly recommended that the product user communicates with the builder and sub-contractor to ensure that the reticulation system is, or has been, installed according to the systems manufacturer's specifications and Australian Standard AS3660 series. Reticulation systems which have been incorrectly installed are likely to increase the chances of a breach of the treated zone being compromised by termites.

THICKNESS OF TREATED ZONE

It is recommended that the minimum thickness of any soil treated zone is 100 mm.

HORIZONTAL BARRIER-TYPE TREATMENTS

This section describes the application of a treated zone intended to fulfil the treatment requirements of a horizontal barrier as per the Australian Standard AS3660. (Refer to 'Service period' information) Horizontal treated zones are to be applied to deter termites from gaining concealed vertical access to the building sub-structure. Their application may not be necessary if the building construction is slab on ground and the slab can be determined to be an intact termite barrier. Vertical treated zones applied as external perimeters would still need to be employed (see below).

Full horizontal treated zones should cover all areas of sub-floor soil where there is inadequate access or where there is less than 400 mm clearance. Care must be taken to avoid spray shadows, e.g. behind pipes. It may be necessary to loosen the soil to allow the soil to percolate to form the treated zone. The treated zone should surround any connection between the building and the soil.

The use of a marker dye may assist in identifying soils that have been treated.

Full horizontal treated zones beneath concrete slabs: If termiticide needs to be injected through concrete slabs to create a horizontal treated zone; suitable application equipment should be used to inject termiticide through pre-drilled holes. Use a drill hole spacing between 150 and 300 mm and volumes sufficient to achieve minimum of 5 L spray solution per square metre.

Partial horizontal treated zones along weaknesses or gaps in the physical barrier/slab:

When drilling along cracks in slabs, expansion joints, walls and around service penetrations, holes should ideally be drilled no further than 150 mm from the crack, wall, expansion joint or service penetration and should be between 150 – 300 mm apart; where this is not possible because of the building construction these areas cannot be considered to be fully protected and this should be highlighted on paperwork provided to the building owner and subsequently these areas monitored more regularly than other treated areas.

As uneven distribution is likely when applying by this injection method through concrete (ie. under a slab), increase the application rate to at least 10 litres of spray solution per m². 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 to ensure even distribution. Ensure a strong seal with the top of the drill hole to minimise leakage and that drill holes are plugged after treatment.

If soil subsidence has occurred beneath the concrete, the use of a foam carrier may assist in treating critical areas.

The following table shows the recommended volume of spray solution required per hole at various drill hole spacings for full horizontal treated zone application.

Soil type	Hole Spacing (mm)	Number of holes per square metre	Volume per hole to achieve 5 L/m ²
Heavy Clay	150 mm	36	0.15 L (150 mL) 36 x 0.15 = approx 5 L
Clay loams	200 mm	25	0.20 L (200 mL) 25 x 0.2 = 5 L
Loams	250 mm	20	0.25 L (250 mL) 20 x 0.25 = 5 L
Sands	300 mm	17	0.30 L (300 mL) 17 x 0.3 = approx 5 L

Drill holes should be filled with a moisture proof compound after application to prevent sub-slab moisture rising.

VERTICAL BARRIER-TYPE TREATMENTS

This section describes the application of a treated zone intended to fulfil the treatment requirements of a vertical barrier as per the Australian Standard AS.3660. (Refer to 'Service Period' information).

Vertical treated zones are to be applied to deter termites from gaining concealed horizontal access to a building or structure. The application of at least 100 litres of spray solution per cubic metre of soil is

required. They can be created by either trenching and treating soil as it is backfilled (the preferred and most effective method) or by a combination of trenching and soil rodding at the bottom of the trench. Vertical treated zones must extend down to 100 mm below the top of the solid footings if they are to be complete. Where a horizontal treated zone is also used the vertical treated zone must be continuous with it.

Note that termites may gain access behind engaged piers against single brick walls unless the soil is treated on both sides of the wall down to the footing.

Vertical treated zones should be at least 150 mm wide with 1.5 litres of spray solution applied per linear metre per 100 mm depth of treated zone. In most cases the product will soak into the soil below this depth so a minimum rate of 5 L per linear metre is recommended (ie. to achieve a treated depth of approx 300 mm). Any variation of dimensions needs to be re-calculated on the basis of applying 100 litres of prepared spray per cubic metre of soil. When using soil rodding equipment to inject termiticide into the bottom of a trench the distance between each rod insertion should be no greater than 150 mm.

Creating a vertical treated zone via drilling and injecting through concrete.

Where trenching and treating soil is not possible (eg. concrete paths and driveways), drilling and injection of termiticide may be required. Holes should be drilled between 150-300 mm apart and application volumes varied in order to achieve application rates of 100 L termiticide per cubic metre of hole.

The following table shows the recommended volume of spray solution required per hole at various drill hole spacings.

Soil type	Hole Spacing (mm)	Litres per hole
Heavy Clay	150 mm	1.5
Clay loams	200 mm	2
Loams	250 mm	2.5
Sands	300 mm	3

Drill holes must be resealed after application.

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 grade 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 barrier-type treatments.

Foam carriers may be useful in ensuring that a more even distribution is achieved. However it is important that the foam application be calibrated to ensure that adequate amounts of PROTHOR formulation are applied, depending on the type of foaming application. Where wet foam is used as a means of assisting delivery of a horizontal or vertical treated zone under concrete the horizontal or vertical barrier-type requirements in terms of volume of PROTHOR dilution used must be met.

Mix the appropriate concentration of PROTHOR in water and add the manufacturer's recommended quantity of foam agent (see table below for foaming recommendations). Apply sufficient volume of PROTHOR foam alone or in combination with liquid solution to provide a continuous treated zone at the recommended rate.

Mixing table to prepare foam to treat 1 m ²					
PROTHOR 200 SC (mL)*	Water (litres)	Foam expansion ratio	Volume of finished foam / m ²	Concentration of liquid	Foam consistency
12.5	5	1:1 (not foamed)	5 L	0.05%	Standard solution
	2.5	5:1	12.5 L	0.1%	Wet foam
	5		25 L	0.05%	
	2.5	10:1	25 L	0.1%	↕
	5		50 L	0.05%	
	2.5	20:1	50 L	0.1%	Very dry foam
	5		100 L	0.05%	

* Add the manufacturer's recommended quantity of foam agent to the PROTHOR 200 SC solution

It is important to note that the expanded volume of foam contains more air than liquid and that the concentration of imidacloprid is only based on the initial volume that is mixed.

Use as a dry foam for direct application to areas of termite activity:

For treatment of termite nests, application to wall voids or others areas of termite activity remote from the nest only the 0.05% treatment rate should be used.

It is recommended that the volume of space to be treated be estimated first prior to mixing quantities of foam. If the volume to be treated is significantly less than 50 or 100 L then the amount of PROTHOR concentrate and water used needs to be adjusted to maintain the concentration of 0.05% in the target volume. Examples of this are illustrated below:

Volume of PROTHOR concentrate (mL)	Amount of active ingredient (g)	Volume of water (L)	Expansion ratio of foam	Volume of foam to be expected (L)
12.5	2.5	5	20:1	100
10	2	4		80
7.5	1.5	3		60
5	1	2		40

COLONIES NOT IN CONTACT WITH THE GROUND

Occasionally subterranean termites establish a colony in a building without having contact with the soil because they have access to a continuous supply of moisture (eg. from a faulty plumbing fixture or leaking roof). Such colonies may not be affected by a soil treatment alone and should be treated by direct nest application (such as with the dry foam recommendations referred to above) or by other procedures such as a colony eradicator dust or baiting system.

RE-INSPECTION

Re-inspection within 3 months of treatment is recommended.

SERVICE PERIOD

Data from Australian trials and seven years of commercial use has shown that a correctly administered application of PROTHOR can deter concealed entry by subterranean termites (except *Mastoterms darwiniensis*) for five years south of the Tropic of Capricorn. A minimum period of two years applies for all other areas and one year for *Mastoterms* in all areas. The actual period of protection will depend on regional and site specific details such as termite pressure, climatic and soil conditions and subsequent soil disturbance. Users are advised to refer to the manufacturer for more specific advice for your area if required.

Data from Australian trials has demonstrated that termites can travel through the treated zone under extreme conditions; however termite activity subsequently ceased in the trial where this occurred, indicating that the protective effect conferred by PROTHOR treated zone can still be effective even if penetration through the barrier occurs. Following the expected periods indicated above the treated zone may still therefore exhibit delayed mortality or other sub-lethal effects leading to death of termites or reduction in their ability to cause damage (i.e. impeding termite activity and deterring concealed entry). The relationship between delayed mortality and cessation of feeding damage has not been entirely quantified and if in doubt more regular monitoring is recommended as appropriate for the level of activity identified. To re-establish the conventional treated zone re-application at full rates is required.

Regular competent inspection is recommended as part of an ongoing termite management programme. Inspections should be carried out at least annually and concurrently, efforts be made to eliminate termite colonies in the area.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND THE ENVIRONMENT

DO NOT contaminate streams, rivers or waterways with the chemical or used containers.

STORAGE AND DISPOSAL

Store in the closed, original container in a cool, well-ventilated area. Do NOT store for prolonged periods in direct sunlight. Triple or (preferably) pressure rinse containers before disposal. Add rinsings to the spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots in compliance with relevant Local, State or Territory government regulations. Do not burn empty containers or product.

SAFETY DIRECTIONS

Harmful if swallowed. May irritate the eyes and skin. Repeated exposure may cause allergic disorders. Avoid contact with eyes and skin. When using the product, wear cotton overalls buttoned to the neck and wrist, a washable hat, and elbow-length PVC gloves. If clothing becomes contaminated with product or wet with spray, remove clothing immediately. If product or spray on skin, immediately wash area with soap and water. Wash hands after use. After each day's use, wash gloves and contaminated clothing.

FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 131126.

MATERIAL SAFETY DATA SHEET

Additional information is listed on the Material Safety Data Sheet for PROTHOR 200 SC Termiticide which is available from Ensyslex on request. Call Customer Service on 13 35 36 or visit our web site at www.ensystex.com.au.

NOTICE

Ensyslex warrants that this product conforms to its chemical description and is reasonably fit for the purposes stated on the label when used in accordance with Directions for Use under normal conditions of use. No warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of the product contrary to label instructions or under off-label permits not endorsed by Ensyslex, or under abnormal conditions.