

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

Radiate

TERMITICIDE

ACTIVE CONSTITUENT: 100 g/L FIPRONIL

GROUP 2B INSECTICIDE



For the protection of structures from subterranean termite damage and for the control of subterranean termites around domestic and commercial structures as specified in the Directions for Use Table.

TO BE USED BY LICENSED PEST CONTROL OPERATORS ONLY
IMPORTANT: READ THE ATTACHED BOOKLET BEFORE USE

Contents: 1, 2.5, 3.5, 3.6, 5, 10 and 20 Litres



FMC Australasia Pty Ltd
5 Palmer Place
Murarrie Qld, 4172
Contact Number 1800 066 355

RADIATE TERMITICIDE

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 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 regulations. DO NOT burn empty containers or product.

PRECAUTIONS

Residents and pets should not be allowed in a room being treated. Any spills should be cleaned up before leaving the room (refer to the MSDS). Ensure all heating/air conditioning ducts, air vents, plumbing pipes, sewers lines, floor drains, heating pipes and electrical lines/conduits are known and identified before commencing any application of termiticide. DO NOT puncture or contaminate any of these. Avoid application around edible plants.

RE-ENTRY PERIOD

DO NOT re-enter treated areas until spray has dried.

SAFETY DIRECTIONS

Will irritate the eyes and skin. Repeated exposure may cause allergenic disorders. Avoid contact with eyes and skin. Wash hands after use. When opening the container, preparing the spray and using the prepared spray wear chemical resistant clothing buttoned to the neck and wrist and a washable hat, half-facepiece respirator, with combined dust and gas cartridge, and elbow length PVC or nitrile gloves. After each day's use, wash gloves, contaminated clothing and respirator and if rubber wash with detergent and warm water.

FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26.

MATERIAL SAFETY DATA SHEET

Additional information is listed in the Material Safety Data Sheet which can be obtained from the supplier.

WARRANTY

FMC makes no warranty expressed or implied, concerning the use of this product other than that indicated on the label. Except as so warranted the product is sold as is. Buyer and user assume all risk of use and/or handling and/or storage of this material when such use and/or handling and/or storage is contrary to label instructions.

APVMA Approval No. 68515/62945

DOM:

BN:

DIRECTIONS FOR USE: All States except Tasmania**RESTRAINTS:**

DO NOT apply to excessively wet soils, immediately after or during heavy rain; to avoid run-off of the chemical.

DO NOT apply at less than label rates

SITUATION	PEST	RATE	CRITICAL COMMENTS
Pre-Construction: Chemical soil treated zones under and around new buildings and structures	Subterranean termites including (but not limited to) <i>Coptotermes acinaciformis</i> , <i>Mastotermes darwiniensis</i> and <i>Schedorhinotermes</i> spp.	600 mL in 100 L water (0.06% a.c. mix)	Application by LICENSED PEST CONTROL OPERATORS: Mix the required quantity of Radiate Termiticide with the specified volume of water and 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 Australian Standard AS 3660.1. The treated zone may be created using a combination of conventional spraying and trenching and via the Camelleri underslab and perimeter and the Altis perimeter reticulation systems. Soil injection equipment (rodding) must only be used where trenching and treating the backfill is not possible or practical. Immediately following treatment the moisture resistant membrane should be positioned over the treated zone to prevent disturbance. Chemical treated zones that have been disturbed will need to be re-applied to restore the complete treated zone. For more details refer to General instructions.

SITUATION	PEST	RATE	CRITICAL COMMENTS
Post-Construction: Chemical soil treated zones under and around existing buildings and structures	Subterranean termites including (but not limited to) <i>Coptotermes acinaciformis</i> , <i>Mastotermes darwiniensis</i> and <i>Schedorhinotermes</i> spp.	600 mL in 100 L water (0.06% a.c. mix)	Application by LICENSED PEST CONTROL OPERATORS. Mix the required quantity of Radiate Termiticide with the specified volume of water and apply to form a continuous chemical soil treated zone (horizontal and vertical or as an external perimeter) around and under the structure to be protected as per Australian Standard AS 3660.2 The treated zone may be created using a combination of conventional spraying and trenching and via the Camelleri (underslab and perimeter) and the Altis (perimeter) reticulation systems. Soil injection equipment (rodding) must only be used where trenching and treating the backfill is not possible or practical. 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-applied to restore the complete treated zone. For more details refer to General Instructions.

SITUATION	PEST	RATE	CRITICAL COMMENTS
Reticulation Systems: Pre- and Post-construction (Camilleri underslab and perimeter and Altis perimeter systems only)	Subterranean termites including (but not limited to) <i>Coptotermes acinaciformis</i> , <i>Mastotermes darwiniensis</i> and <i>Schedorhinotermes</i> spp.	600 mL in 100 L water (0.06% a.c. mix)	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 the Radiate label (refer to General instructions) and the Australian Standard AS 3660 series. Mix the required quantity of Radiate Termiticide 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 metre of appropriate soil (e.g evenly compacted sandy loam soil). Delivery pipes must be positioned 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.

SITUATION	PEST	RATE	CRITICAL COMMENTS
Protection of poles and fence posts	Subterranean termites including (but not limited to) <i>Coptotermes acinaciformis</i> , <i>Mastotermes darwiniensis</i> and <i>Schedorhinotermes</i> spp.	600 mL in 100 L water (0.06% a.c. mix)	Application by LICENSED PEST CONTROL OPERATORS: Only posts and poles in contact with soil need be treated. For existing posts and poles, create a continuous zone of Radiate Termiticide, 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 neither possible nor practical. Use 100 L of prepared spray per cubic metre of soil around the post or pole. Note: it is impossible to treat soil at the bottom of a sound post or pole so future attack by termites via this route cannot be ruled out. When new posts and poles are being installed, the bottom of the hole and the back-fill should be treated with Radiate Termiticide at the time of installation.
Nests in poles and trees			Application by LICENSED PEST CONTROL OPERATORS: Locate the nest by drilling holes into the pole or tree; making sure that the full dimension of the nest is known, particularly the highest extremity. Flood the nest with prepared Radiate Termiticide solution. The amount used depends on the size of the nest. 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. Do not treat trees bearing edible fruit or nuts.

SITUATION	PEST	RATE	CRITICAL COMMENTS
Wall cavity treatment	Subterranean termites including (but not limited to) <i>Coptotermes acinaciformis</i> , <i>Mastotermes darwiniensis</i> and <i>Schedorhinotermes. spp</i>	6 mL in 1 L of water	Application by LICENSED PEST CONTROL OPERATORS: Mix the required volume of Radiate Termiticide 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. Foam directly into the termite carton material until saturated. Application to wall cavities behind plasterboard may result in some staining. Only apply to wall cavities where live termites are present. Radiate Termiticide foaming is not designed and should not be used as a stand-alone treatment. Therefore 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.

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

GENERAL INSTRUCTIONS

Chemical treatment for termite control around existing buildings should be considered to be part of an integrated approach to reduce the risk of termite attack and should be conducted by LICENSED PEST CONTROL OPERATORS. The steps below best describe the procedure for optimum termite management:

- The building owner should try to minimize water entering under and around the building and improve draining to reduce moisture accumulating in these areas.
- Ventilation of sub-floor areas should also be optimized to reduce moisture accumulation.
- The area under the floor should be kept free from debris-timber such as off-cuts of wood or firewood.
- Treat with a residual chemical soil barrier such as **Radiate Termiticide** in compliance with AS3660.2.
- Regular inspections should be carried out (at least annually as recommended by AS3660 Series)
- If any additional subsequent building or landscaping work causes disruption to the chemical soil treated zone it must be restored to maintain protection.

INSECTICIDE RESISTANCE WARNING

GROUP 2B INSECTICIDE

For insecticide resistance management Radiate Termiticide is a Group 2B insecticide. Some naturally occurring insect biotypes resistant to Radiate Termiticide and other Group 2B insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if Radiate Termiticide or other Group 2B insecticides are used repeatedly. The effectiveness of Radiate Termiticide on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use FMC Australasia Pty Ltd accepts no liability for any losses that may result from the failure of Radiate Termiticide to control resistant insects. Radiate Termiticide may be subject to specific resistance management strategies. For further information contact your local supplier, FMC Australasia Pty Ltd representative or local agricultural department agronomist.

MIXING

Half fill the spray tank with water then add the required quantity of **Radiate Termiticide**. Stir then top up the spray tank with water to the required volume. The use of this product in a tank with other insecticides is not recommended as the behavior and efficacy of the product may be affected. Ensure equipment is free of leaks and clean from residues of other chemicals before mixing **Radiate Termiticide**.

SOIL PREPARATION

Some soils will be difficult to wet (e.g. heavy clay soils) and there will be a greater chance of Spray solution run-off of liquid from the treated surface; in these situations it will be necessary to loosen the soil to allow the spray solution to percolate to form the treatment zone; the soil should be scarified to a depth between 50 – 80 mm. In situations with very heavy soils the complete removal and replacement of the soil, with a sandy loam type, is recommended in order to form the treated zone. The replacement soil can be treated with **Radiate Termiticide** solution before placing into the trench via the use of appropriate soil mixing vessels. If soil replacement is not possible then the water volume should be reduced to ensure that run-off is minimized. A reduction in the water volume used should not be associated with a reduction in the mix rate of **Radiate Termiticide** - the same amount of active ingredient must be applied per given area or volume of soil; an increase in concentration of termiticide will therefore be required. The tables below indicate the mix rates if application volumes have to be reduced. It is not recommended that water volumes of less than 3 L/m² are.

Horizontal Treated Zones

WATER RATE/m ²	DILUTION RATE	CONCENTRATION	APPLICATION RATE
5L/m ²	600 mL/100 L water	0.6 g/L	3.0 g ai/m ²
4L/m ²	600 mL/80 L water	0.75 g/L	3.0 g ai/m ²
3L/m ²	600 mL/60 L water	1 g/L	3.0 g ai/m ²

Vertical Treated Zones

WATER RATE/m ³	DILUTION RATE	CONCENTRATION	APPLICATION RATE
100 L/m ³	600 mL/100 L water	0.6 g/L	60 g ai/m ³
90 L/m ³	600 mL/ 90 L water	0.666 g/L	60 g ai/m ³
80 L/m ³	600 mL/ 80 L water	0.75 g/L	60 g ai/m ³
70 L/m ³	600 mL/ 70 L water	0.85 g/L	60 g ai/m ³

If the treatment zone is being applied to a building on a slope, a furrow should also be formed of similar depth along the contour of the slope to prevent run-off of the termiticide. In situations where the surface is very dry or when the soils are sandy or porous, the area to be treated will require moistening prior to application of chemical, to prevent loss of chemical through piping or excessive percolation.

The use of rodding equipment in heavy clay soil can result in an uneven distribution of the chemical; in such situations the preferred method of installing a treated zone is to trench and back-fill.

APPLICATION

Treated zones to protect both new and existing buildings may be installed using a combination of conventional spraying and trenching and approved reticulation systems (Camilleri underslab and perimeter and Altis perimeter systems only). Spray equipment should be calibrated to deliver a low-pressure high volume coarse spray.

It is recommended the minimum thickness of any treated soil zone be 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.

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 sub-structure. 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 to form the treated zone; the soil should be scarified to a depth of 50 – 80mm. Apply 5 litres of prepared **Radiate Termiticide** 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. As 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 litres of spray solution.

To ensure an even treated zone is created, it is also recommended that maximum drill spacing's and minimum application volumes 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° to the slab, and rotated during application. Ensure a strong seal with the top of the drill hole to minimize leakage and ensure that drill holes are plugged after treatment.

Soil type	Hole spacing	Number of holes per square metre	Volume per hole to achieve 10 L/m ²
Heavy clays	150 mm	36	0.3 L (300 mL) (36 x 0.3 = approx 10 L/m ²)
Other soil	200 mm	25	0.4 L (400 mL) (25 x 0.4 = approx 10 L/m ²)

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.

Radiate Mixing Rate	Litres of prepared Radiate spray	Foam expansion Ratio	Volume of finished foam required/m ²
600 mL/100 L of water plus recommended quantity of foaming agent	5	5 : 1	25 L
	10 Under concrete	5 : 1	50 L
	5	10 : 1	50 L
	10 Under concrete	10 : 1	100 L
	5	25 : 1	125 L
	10 Under concrete	25 : 1	250 L

Vertical Treatment Zones

Vertical treatment zones are designed to deter termites from gaining concealed horizontal access to a building or structure. Apply at least 100 litres 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 neither possible nor practical.

Trenching

Excavating a trench, treating the exposed trench, backfilling and treating the back-fill is the preferred method of installing a vertical treated zone. The trench must 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 litres of prepared spray would be applied per lineal metre of trench. Any variation of dimensions must be re-calculated on the basis of applying 100 litres 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° for 4-way tip and 120° 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 litres of 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 following) and the depth of the footing. Assuming a 300 mm depth to the top of the footing and 200 mm spaced holes, 2 litres of prepared spray is to be applied per hole. Any variation of dimensions needs to be re-calculated on the basis of applying 200 litres of prepared spray per cubic metre of soil.

Under Concrete rodding		
Soil Type	Hole spacing	Volume per hole
Heavy clays	150 mm	1.5 L
Other soils	200 mm	2.0 L

External perimeter Treated zones

An external perimeter treatment 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 zone.

Reticulation Systems

At the time of registering this label, the available data only allows use of:

- Camilleri Underslab and Perimeter Reticulation System.
- Altis Reticulation System-Vertical - perimeter only.

AUSTRALIAN STANDARDS

Licensed Pest Control Operators installing a chemical soil treated zone around new and existing buildings should be familiar with the Australian Standard 3660 series which provides information relating to the installation of chemical soil termite treatment zones.

PERIOD OF PROTECTION

Data currently available indicates that this product, when applied as a soil treatment around or under a building or structure in accordance with this label, will be effective against subterranean termites for a minimum period of eight years. Delayed mortality effects may be observed, meaning termites may live and continue to be active several weeks after penetrating the treated zone. To re-establish the treated zone after the 8 year Period of Protection, re-application at full rates is required.

The actual protection period will also be affected by factors such as termite pressure, climatic and soil conditions and subsequent soil disturbance.

RE-INSPECTION

As with all chemical termiticides, regular inspections (at least annually) by a competent Licensed Pest Control Operator are recommended as bridging and breaching of barriers can occur. The need for re-treatment should be determined as a result of these inspections.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

Highly toxic to fish and aquatic organisms. DO NOT apply to areas where surface water is present. Rinse waters and run-off from treated areas MUST be prevented from entering drains or waterways. DO NOT apply if heavy rains are expected to occur within 48 hours of application. DO NOT contaminate streams, rivers or waterways with the chemical or used containers. Dangerous to bees.

PROTECTION OF PETS AND LIVESTOCK

Before spraying remove animals and pets from the areas to be treated. Cover or remove any open food and water containers. Cover or remove (as applicable) fish ponds, aquariums etc., before spraying.

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 regulations. DO NOT burn empty containers or product.

PRECAUTIONS

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RE-ENTRY PERIOD

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FIRST AID

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Registered trademark of FMC Corporation

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