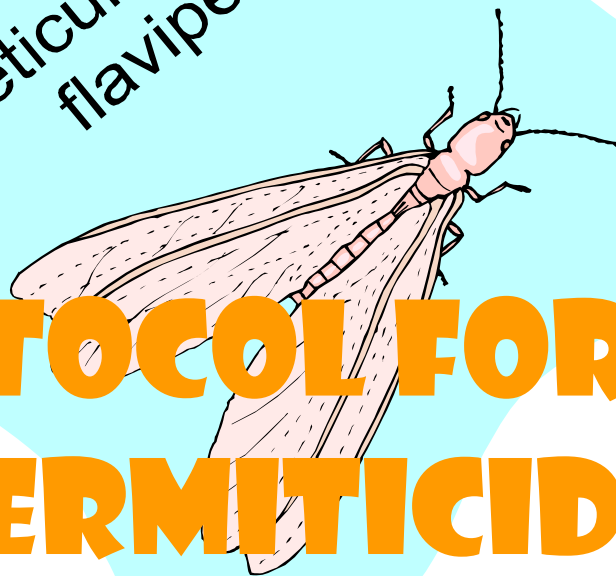


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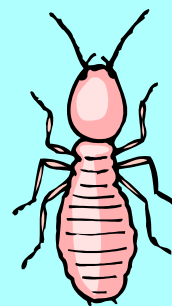
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# PROTOCOL FOR USE OF TERMITICIDES IN SCHOOLS

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2006 edition

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# INTRODUCTION

The aim of this publication is to provide guidance for effective and safe control of termites in schools.

Information provided in this program includes:

- ❖ recommended practices to be used by the school with prevention as the priority
- ❖ recommended practices to be used by pest control firms
- ❖ use of approved chemicals
- ❖ non-chemical alternatives for termite control in new schools
- ❖ organisations who can be contacted to obtain further information on termites
- ❖ general information on termites.



# PREVENTION IS BETTER THAN SPRAYING

Principals and School Councils are responsible for the proper maintenance of all facilities and buildings that make up their school. It is therefore their responsibility to take all precautions to minimise termite infestation.

There are a number of simple measures which can be implemented to reduce the risk of termite infestation.

## TERMITE PREVENTION CHECKLIST FOR SCHOOLS

Tick if yes

Is the school in a high risk termite area?

Check with your local council.

Do you have a regular program of checking likely termite habitats?

This is likely to occur where there is damp and poor ventilation.

Have controls been implemented to dry and ventilate identified problem areas?

If post construction barrier treatment is to be carried out on wet soil then there is a likelihood that the chemical will not bond to the soil and the barrier will be ineffective. If the subfloor environment has good ventilation and drainage then an environment has been created that is unsuitable for termites.

Has a damp area been identified?

If so, find out why. Is there faulty plumbing, rusted down pipes, leaking guttering? Maintenance checks should be carried out to eliminate these faults.

Have potential nest sites been identified?

This would include:

- loose timbers
- paper/furniture under buildings
- mulch or soil hard up against buildings
- railway sleepers in landscaping
- tree stumps.

Other areas for investigation

Tick if yes

Are previous chemical termite barriers intact?

Do termite barriers need to be installed ?

Has previous barrier spraying been broken by building, digging, or other works?

Is there a policy to ensure that eucalypts, wattles, or apricot trees are not planted too close to buildings?

When planting for shade, ensure tree trunks and root systems are not in close proximity to buildings. For further information on school cooling and tree planting, please see the [School Cooling booklet](http://www.eduweb.vic.gov.au/edulibrary/public/ohs/SchlCool.pdf) (<http://www.eduweb.vic.gov.au/edulibrary/public/ohs/SchlCool.pdf>) and DE&T [Facilities Plant Listing](http://www.sofweb.vic.edu.au/facility/schools/schMaint/plantsLists.htm) page (<http://www.sofweb.vic.edu.au/facility/schools/schMaint/plantsLists.htm>).



# WHEN CONSIDERING PEST CONTROL

## CONSULTATION

Has the school consulted with parents, teachers and other staff, including contract cleaners, re any planned treatment?

Whenever an application is to be considered for any termite treatment, the Principal/Manager should ensure that all staff and school councillors have been informed of any proposed treatment and have been given the opportunity to examine all methods including alternative methods of treatment. Many professional pest consultants are willing to visit schools to explain to school communities the chemicals to be used and the methods to be employed.

It is also important that the school's health and safety representative is fully consulted about the spraying and the procedures to be put in place to ensure it is undertaken safely.

## RISK MANAGEMENT APPROACH

It is recommended that schools adopt a risk management approach when selecting chemical product and method of application in treating termites. This would include obtaining from the pest control operator a Job Safety Analysis of their proposed method and a copy of the Material Safety Data Sheet PRIOR to the job starting. Schools must consider the following:

- ❖ Check if the chemical product is hazardous and/or dangerous.
- ❖ Check the active ingredient of the chemical product.
- ❖ Identify areas within the school where termiticides are to be applied.
- ❖ Check if there are waterways that could be potentially affected by the treatment.
- ❖ Check if areas to be treated are accessible to students, visitors and staff; how many are exposed and for how long.

Application of termiticides could be done either by baiting or dusting/spraying. Selection of method to be used would generally depend on the background information of the site requiring treatment, ie. whether location of termites has been identified or not. The following table

provides a general comparison of the currently available application methods.

## BAITING SYSTEM

## DUSTING / SPRAYING SYSTEM

As many baiting stations as required can be designated

Need to reinspect the bait stations and the buildings and surrounds to reposition, reapply or replenish the bait, if necessary, which is a labour intensive practice.

Long-term cost of the monitoring and baiting system may accumulate.

Effective only if the location of termites is identified. Otherwise, the termites must "find" the stations to have any chance of success.

No absolute guarantee of long-term protection of nearby buildings (where termites do not find the bait stations).

Baiting stations could be potentially accessed by unauthorised persons (including students and visitors in a school situation)

Dusting and spraying could be conducted in any area suspected of having termites. However, this could pose potential hazards due to acute effect of termiticides.

With reference to spraying, treated buildings and its surrounds should not be accessed for at least a week after the application, so that the chemical has time to dry out.

Restrict access to sub-floor areas so that the soil is undisturbed for as long as possible, thereby allowing the chemical to bind to the soil.

In respect to dusting, restrict access to treated areas to minimise the inhalation or swallowing of dust particles

As each school site is different, any one or a combination of application methods could be appropriate. This would be determined based on advice from the Pest Control Operator and the schools own risk assessment.



## ARE PROPOSED CHEMICALS APPROVED FOR USE?

When selecting a pesticide, the least hazardous chemical suitable for the purpose should be chosen.

In the past, the chemical Chlorpyrifos (also known by the trade names of Dursban and Deter, and generic Chlorpyrifos such as Nufarm and Chlorpyrifos) was used in post construction spraying for termites in schools. This was because it posed less risk to the health of the environment and the students and staff than traditional organochlorine pesticides. However, it was still acutely toxic and therefore presented an acute risk.

In recent years, other pesticides have been developed which are much lower in toxicity, much less persistent and more specific to termites, thus posing less risks to humans. The Guidelines for the Use of Insecticides and Herbicides on School Properties, Executive Memorandum No 128 as produced by the Department directs that the least harmful chemicals be used in and around schools.

The Australian Pesticides and Veterinary Medicines Authority has currently given approval for the use of Chlorpyrifos, and also for Bifenthrin, Imidacloprid and Fipronil in the treatment of termites. It is recommended that only Bifenthrin, Imidacloprid or Fipronil be used in and around schools.

For information including Material Safety Data Sheets on Imidacloprid, (trade name Premise) please see <http://www.bayernopests.com/products>.

For information on Bifenthrin (trade name Biflex post construction termiticide), please see <http://www.globeaustralia.com.au/prodpterfmc.htm>.

For information on Fipronil (trade name Termidor) please see <http://www.termidor.com.au/>.

Use of these newer chemicals offer schools the capacity to choose the least hazardous, most effective approach for their situation.

It is suggested that schools consult with a licensed pest control operator who can advise on all options available to them.

## **SPRAYING RECORDS**

In accordance with Australian Standard AS 3660.2, all pest control operators must provide schools with a detailed itinerary of what work has been carried out in the form of a Certificate of Termite Treatment.

Many pest control companies issue their clients with a pest register, which is filled out at all visits listing what pest control work has been carried out, and the name of the chemical used.

The school should keep this as a permanent register of all termite treatments. The pest control register will provide any information needed, including when the last spraying took place, what was used, and the estimated time such a treatment will last. If spraying has occurred recently there needs to be a check on when it was done, how much was used, where it was applied and what chemical was used. An example of a pest control register is shown in Appendix 2.

## **SAFETY CONTROL PROCESS DURING SPRAYING**

The school should have a process to ensure that all persons unconnected with the actual chemical application are kept away from any building during the application process, and until the area has been checked by the pest control operator and declared to be free from leaks, spillages, etc. As well, children and animals should be prevented from playing in the soil immediately surrounding the treated building, for at least a week after the application, so that the chemical has time to dry out. Ideally, termite treatment should occur during school holidays with appropriate signage displayed for the following week notifying of pesticide use.

Access to sub-floor areas should be restricted so that the soil is undisturbed for as long as possible, thereby allowing the chemical to bind to the soil and produce the necessary barrier. Also it is necessary to minimise the inhalation or swallowing of dust particles, which may contain some of the chemical. If there is a necessity for people to enter any area that has been recently treated (e.g. plumbers, gas fitters, etc) they should be warned so that they may take any necessary precautions, such as the wearing of respirators.



# A CHECKLIST FOR SCHOOLS

## TERMITE SPRAYING

Once a school, after consultation with the School Council, decides to carry out chemical termite treatment it is necessary to ascertain whether the pest control operator contracted is licensed. Schools should get inspections and estimates from more than one company, and should ask for a list of local references before deciding on a final selection.

## WORKING WITH THE PEST CONTROL OPERATOR

Tick if yes

Is the pest control operator licensed?

A pest control operator intending to use pesticides in the course of a business must be licensed with the Department of Human Services. DE&T does not recommend the use of untrained operators. This information may be obtained from the Department of Human Services, Melbourne, (03) 9637 4156 (pest control licensing). Further information on the requirements for trained operators is available on <http://www.health.vic.gov.au/pestcontrol>.

Does the pest control company have a copy of this protocol, and any other requirements that the school community has?

If not the school should see that they are given a copy. The protocol may be obtained from the HRWeb OHS Website on <http://www.eduweb.vic.gov.au/hrweb/ohs/worken/build.htm>.

Has the pest control company provided you with a detailed itinerary of the services they propose including:

(1) the area to be treated and the location, as detailed in a plan;

(2) the date and time of the proposed service;

- (3) the chemicals to be used; how much, and in what solution;
- (4) current information, (either a product label or current Material Safety Data Sheet) for each chemical used, which describes the physical and chemical properties and uses of the substance; health hazard information; precautions for use and safe handling information;
- (5) a description of method(s) to be used and procedures to be carried out;
- (6) any other forms of pest management which the contractor proposes either in conjunction with the pesticides or independently;
- (7) any comments regarding structural modifications or improvements or changes to work practices that might facilitate treatment and reduce the likelihood of future problems, e.g. nest location in trees;
- (8) information on the extent of any preparatory work that is to be carried out by the school establishment to facilitate the pest control service including removal and destruction of materials that could be used as nesting sites;
- (9) action for excluding persons not wearing protective clothing, as well as any animals from the areas being treated until the soil is dry; 

Persons occupying the building should also be advised not to return until the soil is dry.
- (10) contingency plans to delay spraying if there is heavy rainfall so that the soil has time to dry out, otherwise the termiticide will not attach to the soil; 

If the situation is urgent then arsenic treatment is a short-term answer that may be utilised until the soil is dry.
- (11) the provision of warning notices to be placed at all entrances or approaches to the risk area; 

These notices to remain in place until treatment and clean up have been completed. A notice, printed on durable material conforming to Appendix D of AS 3660.2, must be affixed to a prominent position within the building (eg. the

entrance to a crawl space or, in the case of slab-on-ground construction, in the electrical meter box). The notice advises the owner and others that a chemical barrier has been installed.

- (12) confirmation that the building where the spraying has taken place has been adequately ventilated;



This would require that spraying be carried out within a timeline that allows for the soil to dry and to have at least three clear days for the area to be reopened and ventilated before staff and students use the area. Given this and other considerations, DE&T recommends that spraying for termites should occur only during long school holiday periods.

It is crucial that adequate ventilation be achieved, e.g. it is not enough to simply open all windows and doors during this period, especially if a barrier repellent spraying has been used. In such a case, cross ventilation is essential and particular attention should be given to the design, layout and any other features of the buildings which may hinder the dispersal of the vapours. This is necessary so that vapours are not trapped in buildings.

Such vapours come not from the termiticide but from the solvents in which some chemicals, such as chlorpyrifos have been dissolved. Common solvents include toluene, kerosene and xylene, all of which may result in temporary irritation, causing headaches, sore noses, sore throats and nausea. The new class of termiticides such as Imidacloprid is claimed to be both vapour and smell-free, making use of such chemicals a better choice.

For airconditioned buildings, where windows cannot be opened, sufficient ventilation can be achieved by turning air conditioning units to maximum fresh air intake for at least 2 hours. However, care should be taken to ensure that the air intakes for airconditioning/heating units are not in the treated subfloor space.

- (13) confirmation that the contractor holds a Public Risk Policy to indemnify the school against any claims arising from acts of the contractor and/or their operators?



Proof of this to be supplied to the school including the name of the insurance company, the policy number of the public risk policy, the amount of cover, and the expiry date of the policy, the school to remain liable for areas in their control. This information should be provided to the school at least two weeks before the proposed work is carried out, or in time for the School Council and school community to study same, as agreed.



# A CHECKLIST FOR PEST CONTROL OPERATORS

If chemicals are to be used for the control of termites in schools, certain precautionary measures must be taken, before, during and after application. Such measures will ensure the health and safety of students and teachers.

Tick if yes

Has the pest control operator (PCO) read their copy of the protocol and agreed to provide services within these guidelines?

Has the PCO checked with the school that the Principal has carried out all of his/her requirements under the protocol?

Has the PCO provided the school with an itinerary (as on p11)?

Is the PCO appropriately licensed with the Department of Human Services?

Has the PCO provided current Material Safety Data Sheets (MSDS) for the chemicals that will be used at the school?

Has the PCO carried out preparatory work with the school to explain materials and processes involved?

Has the PCO provided warning signs for display during and after spraying until the sprayed areas are safe, and have a permanent notice as required under the Standard?

Has the PCO provided advice about termite prevention measures which the school should take?

Has the PCO provided a Certificate of Termite Treatment to the school detailing the products used, locations of use and other information as required under the Standard?



# OTHER MEASURES TO ASSIST IN THE SUCCESSFUL TREATMENTS OF TERMITES

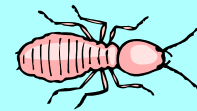
- ❖ Fix leaking water pipes and drains. A damp environment increases the possibility of termites thriving and breeding.
- ❖ Improve sub-floor ventilation, drainage and access.
- ❖ Do not leave timber formwork behind, especially under a suspended floor construction.
- ❖ Arrange a program of regular inspections with a pest controller (early spring to late summer is best as termites are most active at this time). Annual inspection must address the following:
  - Inspection around perimeter weepholes in brick veneer constructions.
  - Inspection of landscaping timbers, fencing and other timber structures.
  - Inspection of termite shields, ensuring they are intact and not breached by galleries.
  - Underfloor inspection of stumps, floor frame and perimeter masonry.
  - Particular attention should be paid to areas under kitchens, toilets and bathrooms, and laundries.
- ❖ Avoid storage of potential termite food (timber stacks, old stumps, building refuse) near buildings.
- ❖ Remove termite colonies from building vicinity.
- ❖ Check any trees, stumps, wood stockpiles or other sites that may harbour termites within 50 metres of the building.

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# APPENDICES AND RESOURCES

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## APPENDIX 1



# GENERAL INFORMATION ON TERMITES

An eradication and control program needs to be based on a detailed knowledge and understanding of the biology and ecology of termites. Control and preventative strategies are designed to take advantage of weak links or susceptible periods in the life cycle of the insect.

Termites use cellulose as their food source, and whilst there are over 350 species of termites in Australia, only about twenty eat sound timber. The others are satisfied with cellulose obtained from dry twigs, decayed wood, paper and cardboard, grass and humus materials in the soil. It is these 20 species that damage sound timber, and their biology and their social structure dictates the strategies that must be followed to cope with them.

Termites live in colonies within a nest that requires a constantly warm environment with high humidity content. Within a mature nest there can be over a million termites.

The Queen is essentially an egg machine, producing up to 1000 eggs per day. The sole purpose for the existence of the King is to fertilise these eggs. These two can live for up to 10 years in a colony.

Workers, who make up the largest numbers in the nest, work at feeding the colony and enlarging the nests. These are the termites that do all the damage to wood. They are also the termites that are affected by the newer termiticides as it is they who move through the treated zones and come in contact with the chemicals. When affected they can no longer forage for food or feed the nest. Also when affected by the chemical they become more vulnerable to pathogenic soil fungi which causes them to succumb to disease and death by these naturally occurring organisms.

Soldiers, who are equipped with pincer-like jaws guard the nest, but have no capacity to forage for food.

Reproductive termites are produced during warm humid weather. They cannot emerge until the temperature outside matches the temperature of the inside of the nest. It is these termites that set up new nests. They are not strong flyers and do not go far from their exit point before dropping to the ground. The four basic requirements to commence a new colony are: access to materials containing cellulose that will provide a food source, moisture, humidity and an entry in the ground where they can seal themselves off from the outside environment. Given these requirements a new colony can be started up very easily.

The colony lives in a compact nest, usually concealed, and from this dig underground tunnels that radiate to the timber from which they are feeding. These tunnels can be up to fifty metres from the nest. Damp areas are particularly attractive to termites, and a favourite nesting site is in sleeper embankments used in landscaping.

When erecting new buildings there are possibilities of making a structure termite proof by using only non-susceptible materials. There are also physical barriers to termites that are being considered and tested in Australia. However, for buildings already erected, chemical spraying and good housekeeping are still the only answers for effective termite control.



# SAMPLE PEST REGISTER

Name of Pest Control Operator ..... Company .....

Phone ..... Mobile ..... Fax .....

Email .....

Date Reported	Pest Activity	Location	Action	Date Actioned	Signature



# RESOURCES

Standards Australia, *Termite Management*, AS 3660:Vol. 1-3, (2000) Sydney, NSW. Victorian government schools login at Facilities Online <https://www.eduweb.vic.gov.au/intranet/facilities/standards.htm>

This covers termite management for all post and pre construction work including protection of buildings from subterranean termites, detection and treatment of infestation in existing buildings, and chemical treatment of soil for buildings under construction.

Department of School Education, Guidelines for the use of insecticides and herbicides on school properties, Executive Memorandum No 128, Melbourne, Victoria.

French, J. R. (1991), *Physical barriers and bait toxicants: the Romeo and Juliet of future termite control*, CSIRO, Division of Forest Products, Clayton, Victoria.

Watson, L. (1992), *Alternative Termiticides and Alternatives to Termiticides*, CSIRO, Division of Entomology, Canberra, ACT.

WorkCover Authority (1991), *Protocol for the Use of Pest Control Agents in Schools*, Sydney, NSW.

## Useful Websites

Information from the Public Health Division, Department of Human Services on pest control including licensing and chemicals plus the Guidelines for Pest Control licensing.

<http://www.health.vic.gov.au/pestcontrol>

Information on the health impacts of pesticides and precautions to take.

<http://www.betterhealth.vic.gov.au>

CSIRO information page on all aspects of termites.

[http://www.csiro.au/pa\\_ge.asp?type=faq&id=termitecontrol](http://www.csiro.au/pa_ge.asp?type=faq&id=termitecontrol)

General information on termites.

<http://www.termite.com/termites/australia.html>

Australian Pesticides and Veterinary Medicines Authority regarding list of approved termiticides.

<http://www.apvma.gov.au/>