Ready Reckoner- Application Overview

Use of Termirepel®™ in Construction Applications

C Tech Corporation

Product Specialization Group

Generic Requirements

Termirepel®™, non toxic, non hazardous and environmentally friendly anti termite master batches

A brief overview on the use of Termirepel®™ in Construction based Applications

CTECHCORPORATION
uncompromising quality

TECHNICAL NOTE

TERMIREPEL®™ FOR CONSTRUCTION APPLICATIONS

Termirepel®™ is a non- toxic, non- hazardous, environmentally safe additive specially developed for use as a master batch in polymeric applications as well as in coating applications for natural materials like wood.

Termirepel®™ does not kill but keeps the pests away by making use of the sensory mechanisms. Termirepel®™ is a product of Green Technology and is applicable for a variety of uses in a multitude of sectors.

It is a broad spectrum aversive repelling more than 600 species of pests including termites, caterpillars, red and black ants, aphids, leafhoppers, beetles, mites, leaf borers and many more.

In the construction sector a number of materials are susceptible to termite damage, the foundation and surrounding soil during the construction phase, wooden and synthetic surfaces of the finished project are all vulnerable to attack.

❖ LOSSES DUE TO TERMITE ATTACK IN CONSTRUCTION PROJECTS

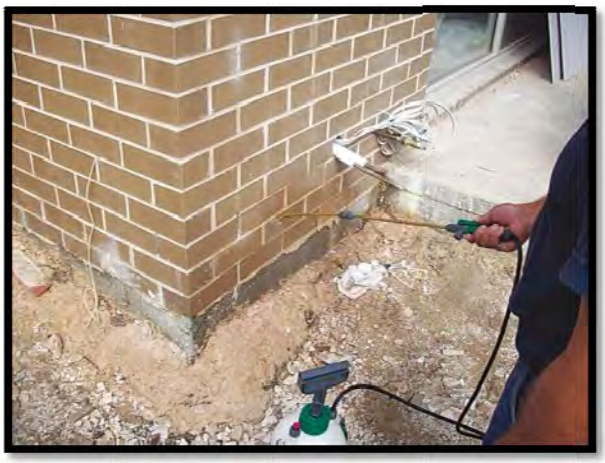
Unprotected structures and constructions are susceptible to severe attack from termites and other pests. Termites not only attack

wooden structures but also polymeric and other synthetic materials including base frameworks, furnishings, interiors etc

Termites are usually detected too late after the damage has been done and treating them after an infestation had occurred is difficult and expensive.

Toxic and harmful termiticides that are added to soil can leach into the ground water or volatize leading to dangerous fumes.

Thus the current methods of termite control fall short when dealing with the termite problem in an efficient and safe manner.



❖ SALIENT FEATURES

- Non-toxic
- Non- hazardous
- Environmentally safe
- Acts as an aversive

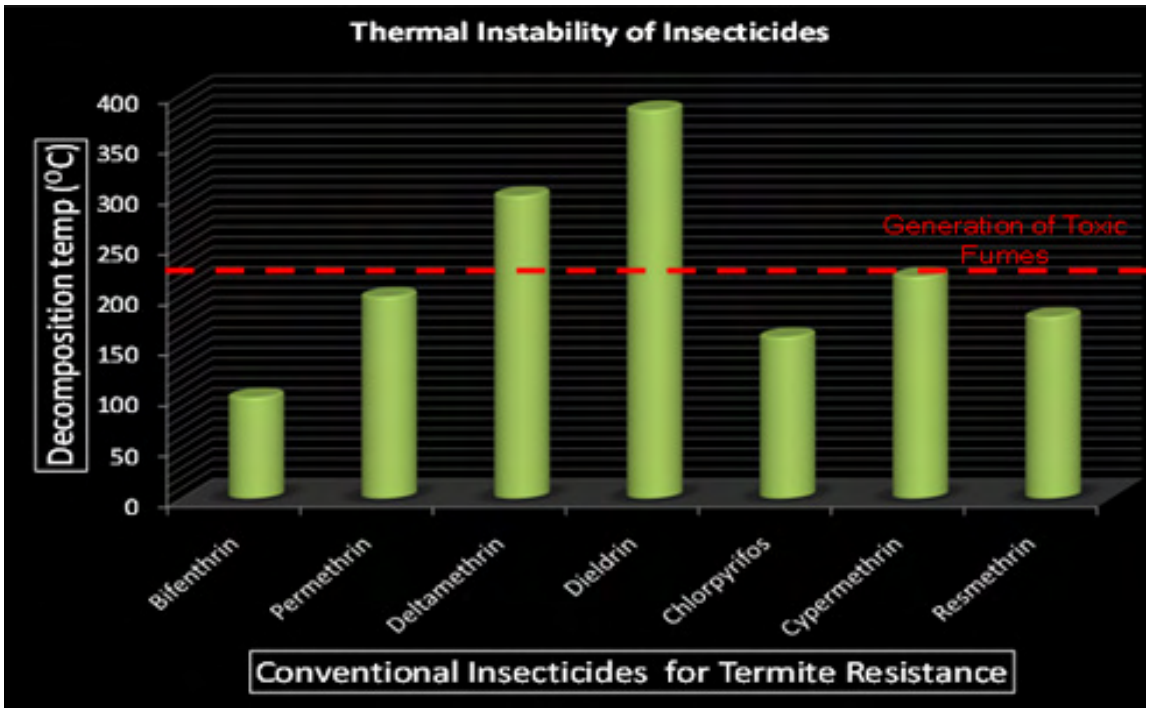
- Large life span of 5-40 years
- Thermally stable at temperatures as high as 1400 ^{o}C
- Does not leach into Groundwater and soil
- Does not volatize
- No harmful Fumes
- Available as a LDPE and EVA masterbatch
- Can be customized according to customer requirement
- Inert in the polymer matrix
- Does not degrade in soil
- Chemically Stable
- Hazardous polymerization not likely to occur
- Not harmful if accidently inhaled or ingested
- Safe to add in pipes used for drinking water

❖ THERMAL STABILITY

Most of the termiticides and pesticides used volatize at high temperatures releasing harmful fumes. As temperature increases, vapour hazards increase. The vapours from many pesticides increase three to four times for each 10 C increase in temperature.

Termirepel®™ is designed to withstand the high temperature of polymer processing. Termirepel®™ is stable up to 1400 C and hence is safe to use in severe temperature conditions.

Given below is the thermal instability of various insecticides

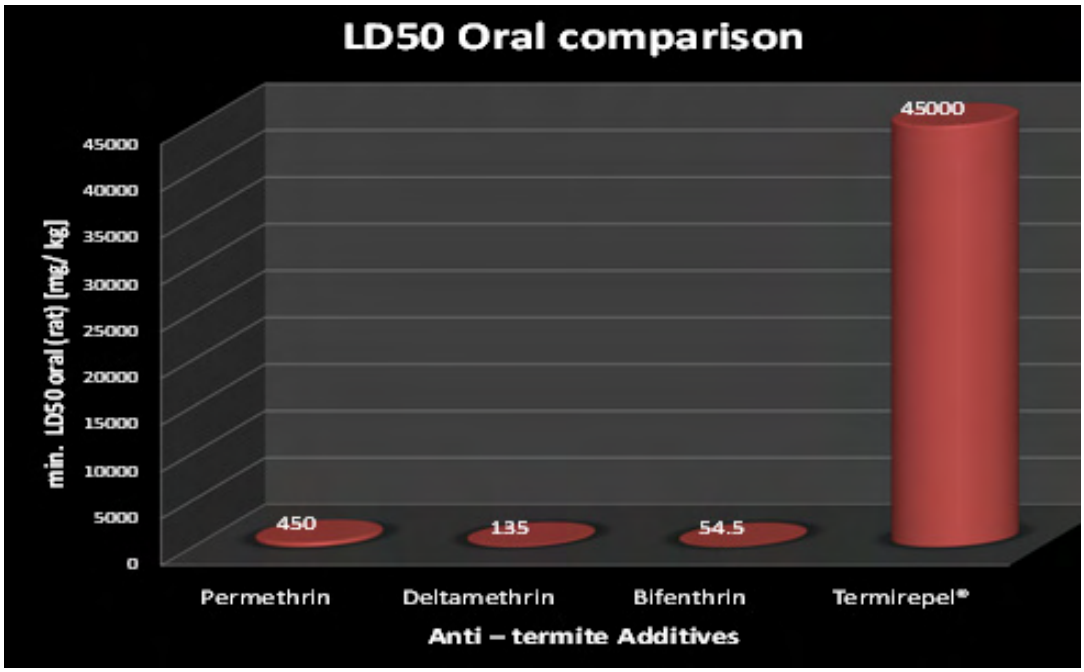


Thermal Instability of conventionally used insecticides

❖ NON-TOXICITY

The Lethal Dose and Lethal Concentration are used to determine the toxicity of most chemicals. The testing is mostly done with rodents and mice. The LD50 is a method to measure the toxicity of a material. It is the amount of a chemical substance per 100 grams or per kilogram of the weight of the test animals that would cause the death of half (50%) of the test species.

Lower the LD50 value, higher is the toxicity as lesser quantity of the substance is enough to cause toxic effects. Termirepel®™ has a very high LD50 value thus showing its non toxic nature.



Higher the LD50 value, lesser is the toxicity

❖ CRITICAL PARAMETERS

Sr. No.	Property	Testing/Effect
1	Effectiveness	Anti-termite testing for evaluating the bioefficacy of the finished sample comprising of Termirepel®™
2	Non toxicity	Oral LD50 tests for evaluating the toxicity of the masterbatch
3	Long life span	Depending on source wood and if creosote treated or not, life spans of different wooden structures will vary
5	Vapor barriers and Waterproof membranes	Not needed as the product does not leach out

6	Soil Parameters	Evaluation that the treated soil for termite control is safe - The Stake method - The Ground board method, - The Modified ground board method.
7	Wood Parameters	Modifications of the Stake Method, Ground Board Method, and Modified Ground Board Method are used for evaluating additive added wood products.

❖ CONSTRUCTION APPLICATIONS:

Termirepel can be customized for use in the following ways

➢ Film Applications

Termirepel®™ is added in a thick film below the foundation. This acts as a termite barrier It prevents the termites form breaching the barrier and attacking any subsequent construction.

➢ Surface Applications

Natural surfaces like wood as well as synthetic surfaces can be protected from damage by addition of a lacquer or solution of Termirepel®™ in suitable solvent as a coating.

Wooden structures and surfaces can either be painted with the lacquer of Termirepel®™ or dipped into a solution of Termirepel®™, rendering it termite proof. Different grades of Termirepel®™ can be used depending on the end application.

➢ Soil Applications

A Termirepel®™ solution in water can be used to deter aggressive termite species and protect the site of the construction project at the outset. The solution of Termirepel®™ can be sprayed on the soil to repel the termites and other insects

➢ Factors Affecting Soil Application

The soil type and its moisture content affect the penetration.. A soil fill accepts treatment best when it is damp, but not excessively wet or dry. If the soil is excessively wet, there is a chance of runoff, and the chemical will not penetrate the soil. In frozen or excessively dry soil, the products used are repelled and puddling occurs, resulting in poor penetration and distribution.

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❖ SAFETY AND VERSATILITY

- Termirepel®™ is thermally stable and does not degrade on exposure to heat and light. It is soil stable and does not leach out to pollute the soil or air.
- It is completely inert in the polymer matrix apart from performing its main function of acting as an aversive.
- It is compatible with a number of polymeric bases depending on the end application
- Termirepel®™ is RoHS and REACH compliant and FIFRA exempted.

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