Polyguard®
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TERM sustainable pest barriers

TERM Particle Barrier for Termites

For new construction / for existing structures

Patent Pending

EPA Establishment No. 89537-TX-1

Product Data Sheet

Polyguard's particle barrier consists of quartz particulates exactly sized to block both the *Reticulitermes flavipes* and *Coptotermes formosanus* species.

DESCRIPTION

The *TERM Particle Barrier* was developed by Bryan Springer, a Galveston, TX based pest management professional, in 2005. Springer had the barrier tested at Texas A&M's Department of Urban and Structural Entomology. (See the test at http://www.polyguardbarriers.com/Sub-sites/TechRef/Texas%20AM%20Particles%20Report.pdf)

Springer installed test installations on the outside perimeter of foundations at a number of homes and one commercial structure. All of the structures were termite infested. All were in areas around Galveston and Houston where both *Reticulitermes flavipes* and *Coptotermes formosanus* termites are a serious problem. In a December 2013 audit of all of these sites, none showed evidence that termites had breached the particle barrier. A summary of the test installations is on the back of this page.

Particle termite barriers have been widely and successfully used in other parts of the world since the 1980's. However they have never been made available in the mainland United States.

The principle behind particle barriers is simple. According to the University of Hawaii website;

> *"There are three basic requirements for a particulate barrier to be effective. First the granules must be small enough to pack well so there aren't any gaps the termites can squeeze through. At the same time, the granules must be big and heavy enough that the termites can't pick them up and move them. Third, the granules must be too hard for the termites to chew."*
> http://www2.hawaii.edu/~entomol/research/r_btb.htm

ADVANTAGES

The *TERM Particle Barrier* is an insect exclusion product. Used around the perimeter of the building, it can drastically reduce the quantity of termiticides needed to protect the structure.

Polyguard has registered our barrier manufacturing facility with the EPA, who along with state agencies regulates pesticides. However, Polyguard's barriers are classified by the EPA as *"devices"*, since they contain no toxic components.

Termites trying to get into a structure are unable to penetrate the *TERM Particle Barrier*. Also important, in the case of the *Reticulitermes flavipes* species is that the insects are unable to get *out* of a structure which they previously penetrated. In the majority of infested structures, there is not sufficient moisture in the building for *Reticulitermes flavipes*, so they have to come out to obtain moisture.

The picture below shows the end of a *Reticulitermes flavipes* mud tube. The *Reticulitermes flavipes* came out of the home at the foot of the corner of the foundation (see light brown mud tube in the crack). The termites were unable to penetrate the barrier, so they built a new mud tube horizontally, searching for a place where they could breach the barrier. The finger points to the end of the mud tube. At that point the *Reticulitermes flavipes* were dissicated and died from lack of moisture.

Pointing to a place where Reticulitermes flavipes were blocked from leaving a structure to replenish moisture

TERM Particle Barrier: Galveston/Houston Area Test Sites Summary of Test Installations						
Site	Installation Date		Location		Approx Age in years	Construction
	Month	Year	City	Street		
1	June	2005	Texas City	19th Ave	50	wood frame
2	June	2005	Texas City	19th Ave	50	wood frame
3	June	2005	Bacliff	Chasewood	20	brick masonry
4	May	2005	Santa Fe	Abar	25	brick masonry
5	July	2005	Galveston	Tiki	30	wood frame
6	July	2005	Texas City	Twelve Oaks	30	brick masonry
7	August	2005	Texas City	20th St.	50	wood frame
8	November	2005	Dickinson	Gladebridge	30	brick masonry
9	November	2005	Santa Fe	Mt. Vernon	30	brick masonry
10	January	2005	Texas City	6th Ave	45	brick masonry
11	March	2005	Santa Fe	28th St	25	brick masonry
12	March	2005	Santa Fe	28th St	25	brick masonry
13	August	2005	Texas City	20th St.	50	wood frame
14	April	2005	Texas City	9th Ave	50	cinder block
15	April	2005	Houston	Modiste	50	brick masonry

- All sites had termite infestation at the time of installation
- None of the sites had termite infestation as of December 2013

REFERENCES

There are several ways in which LEED credits might be earned by incorporating TERM Barrier System components into the structure.

1. Increasingly, LEED has incorporated Integrated Pest Management (IPM) into standards.

   LEED calls for IPM protocols in order to *"minimize pest problems and exposure to pesticides".*

   A key IPM element is; *"Nonchemical pest preventative measures…..designed into the structure…".* *TERM Barriers* are nonchemical pest preventative measures.

2. LEED rating systems for homes incorporate (SSC5) *Non-toxic pest control".* Two components found in the *TERM Barrier System* are mentioned; they are steel mesh and sand barriers. Both are used as termite barriers.

   TERM Sealant Barrier / membranes are not mentioned, as they are only now entering the field for sustainable construction alternatives.

3. The incorporation of *TERM Sealant Barrier / membranes* into the building envelope should be a strong candidate for Innovation credit.

4. Finally, if the project site is former agriculture land with residual pesticide contamination, *TERM Barriers* may qualify under LEED IAQ Credit 5 - Indoor Chemical and Pollutant Source Control (below grade toxin barrier) or SS3 - Brownfield redevelopment.

USES OF THE TERM PARTICLE BARRIER

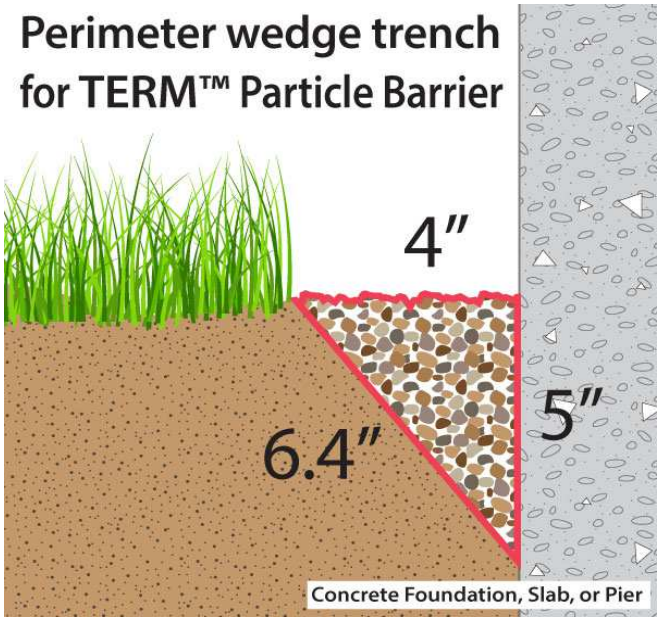
The uses listed below are for either new construction, or on existing structures.

1. Properly installed around the perimeter of a structure, the barrier will block entry of termites to the home, and exit of termites which are inside the home.
2. As a termite barrier at bath traps.
3. As a termite barrier where above slab plumbing or electrical penetrations emerge.
4. As part of a TERM Full Bath Trap System, which excludes termites, fire ants, rodents, snakes, and moles. *(See data sheet for TERM Full Bath Trap System.)*

INSTRUCTIONS FOR USE AS A PERIMETER TRENCH AROUND STRUCTURE

(Installation Video: https://www.youtube.com/watch?v=IRGQ7fsnXUk)

1. Dig a wedge shaped trench, minimum 4" across the top, 5" deep down the vertical concrete face, and 6.8" along the slope (hypotenuse) of the triangle. These distances are plus or minus 1" because of the difficulty of digging exactly. The trench should be installed wherever vertical concrete surfaces of the structure are exposed around the entire perimeter.
2. Clean the vertical face of the concrete so that the surface will be completely clean of mud and debris. A quick way to do this is with a hosing of the exposed area of the wall.
3. Fill the trench to the grade level with *TERM Particle Barrier*.



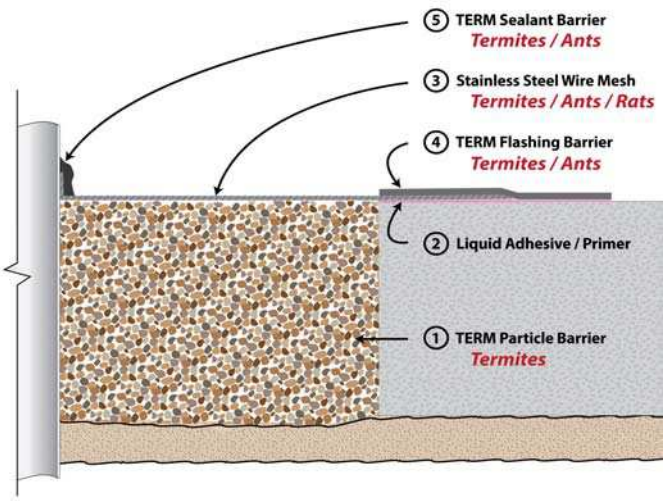
Inspection and Repairs

Note that regular inspection (approximately every six months) and repair (if necessary) of the TERM Particle Barrier is necessary. The following are some things which can compromise the barrier:

a. Cats using the barrier as litter.
b. Dogs digging up the barrier.
c. Landscaping or construction activities which displace the barrier or cover it with dirt.
d. Overgrowth by vegetation
e. Debris or mulch.
f. Children playing in the area.

TERM FULL BATH TRAP SYSTEM

The *TERM Particle Barrier* is a key component of the *TERM Bath Trap*



System, which provides protection from fire ants, rodents, snakes, and moles.

The TERM Full Bath Trap System has a separate data sheet. http://polyguardbarriers.com/Sub-sites/Literature/datasheets/TERM%20Bath%20Trap%20Barrier.pdf

Under normal circumstances this bath trap installation should not require maintenance.

INSTRUCTIONS FOR USE AS AN ABOVE SLAB PENETRATION BARRIER

Note: There are two acceptable methods for creating termite barriers at slab penetrations. One is using TERM Particle Barrier, which is shown here. The other is using TERM Barrier Sealant, (not shown)

Generally, the use of TERM Particle Barrier for treatment of above slab penetrations is most suitable for remodeling. For new construction, where penetrations are more open and accessible, TERM Barrier Sealant will be found to be faster and more cost effective.

Here is the procedure for TERM Particle Barrier:

1. Create sill plate cutout in area of penetrations, and provide necessary reinforcement to restore strength to sill plate.
2. Precut TERM Penetration Collar to proper length ((2 X depth of sill plate plus 2x length of sill plate plus 2")/
3. Fold TERM Penetration Collar to fit snugly inside the sill plate cutout.
4. Staple TERM Penetration Collar to end of sill cutout. It should be firmly in place and snug with the concrete.
5. Fill the TERM Penetration Collar to the top with TERM Particle Barrier.

Under normal circumstances this penetration barrier installation should not require maintenance.

TERM Particle Barrier and Penetration Collar used to block termites from entry through plumbing penetrations

Material Storage: Barrier and accessories should be unloaded and stored carefully. Do not stack barrier material higher than 5' *(1.5m)* vertically, nor double stack pallets. Cartons should be stored on pallets and covered to prevent water damage.

LIMITATIONS

Polyguard TERM™ Particle Barrier is not suitable for application to most crawl spaces under existing structures. The reason for this is the typical extreme tight spaces, which create difficulty of making a proper installation, of checking for correct installation and of maintenance.

The information in this data sheet is designed to be helpful to the reader. It is based on experience and information considered to be accurate and true. Readers should carefully consider and verify the information with investigation of any areas with uncertainty. *Polyguard* does not warrant the results to be obtained. Additionally, please read everything here in conjunction with *Polyguard's* conditions of sale, which are applicable to everything supplied by us. No statement here is intended for any use which would infringe any patent or copyright.

Purchaser is responsible for complying with all applicable federal, state, or local laws and regulations covering use of the product including waste disposal.

PHYSICAL PROPERTIES

Property	Typical Property
Fineness Modulus	3.83
Weighted Particle Size	1.72
Hardness – Mohrs Hardness Scale	> 6
Gradient Angularity *Mean gradient angularity*	2000 - 3000

PACKAGING INFORMATION

Product	Unit of Measure	Weight / Unit
Polyguard TERM Particle Barrier	Bag	50 lb.

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