Perform Guard No. 6006

Subject: SIPs

Date: January 2008 (Revised January 2019)

ThermaFoam R-Control has developed a treatment called Perform Guard® for molded polystyrene which creates a termite resistant product.

Through this development, ThermaFoam R-Control has conducted numerous studies on the efficacy of termite resistant ThermaFoam R-Control insulation with Perform Guard.

ThermaFoam R-Control insulation with Perform Guard Testing Summary

Borates have been widely utilized by the scientific and pest control communities to resist termites. Numerous studies have been completed by universities, government sponsored agencies and industries showing the efficacy of borates for termites. Due to the effectiveness of the borates and their low toxicity to humans and animals, ThermaFoam R-Control elected to research the compatibility of borates with molded polystyrene insulation products. ThermaFoam R-Control insulation with Perform Guard is the result of the ThermaFoam R-Control research and development effort.

Studies have been conducted to determine the resistance of products produced with ThermaFoam R-Control with Perform Guard to several species of termites. These studies include force feeding and long-term full exposure. Summaries of each test completed are described. The results of the ThermaFoam R-Control with Perform Guard test program demonstrate resistance to termites in the environments where these types of products will be utilized.

1. Termite Resistant Testing

A.) "Feeding and Survival of Subterranean Termites After Exposure to Untreated and Borate Treated ThermaFoam R-Control Building Panels in Laboration, Gulfport, Mississippi, by Lonnie H. Williams, Principal Entomologist, November 1991.

The testing was initiated to evaluate the termite resistance of untreated panels and ThermaFoam R-Control SIPs (Structural Insulated Panels) which utilized ThermaFoam R-Control with Perform Guard cores and topically treated OSB skins. Panel segments measuring 6" x 6" were extracted from full size panels and were exposed to both Reticulitermes flavipes (Kollar) and Coptotermes formosanus Shiraki. A 6" x 6" sample panel was placed in a large vessel on top of a sterilized brick, which was placed in a moistened substrate. To each vessel, several thousand termites from a single colony were added. Each of the repetitions consisted of vessels with treated panel and untreated panel segments.

Purpose:

To determine the efficacy of a treatment for SIPs which contain ThermaFoam R-Control with Perform Guard and topically treated OSB skins.

Results:

ThermaFoam R-Control SIPs produced with borate treated insulation (Perform Guard) and topically treated skins were protected from severe feeding damage by the native species (Reticulitermes flavipes) and the introduced species (Coptotermes formosanus) of termites. The treated panels using ThermaFoam R-Control with Perform Guard had complete kill of the Reticulitermes flavipes in 1 week and the Coptotermes formosanus workers in 6 weeks while the untreated panels had over 80% survival rates for both species after 6 weeks and exhibited severe panel damage by the termites.

It was also found that ThermaFoam R-Control with Perform Guard cores laminated to plain OSB (no topical treatment) reduced weight loss and foraging tube construction as compared to the completely untreated samples.

2. Insitu-Testing

A.) "Evaluation of Structures Constructed with Borate-Treated Components for Protection from Damage by Insects and Decay Fungi" conducted by the United States Department of Agriculture, Lonnie Williams, Principal Entomologist, and William H. Sites, Plant Pathologist.

Three structures erected utilizing ThermaFoam R-Control SIPs made with ThermaFoam R-Control with Perform Guard cores were built by the USDA to monitor borate treated construction component resistance to damage by wood damaging subterranean and drywood termites and decay fungi. The first structure was erected in November of 1991, at the Forest Sciences Laboratories in Gulfport, Mississippi. The second structure was built in January 1992 in a park in Jacksonville, North Carolina, and the third structure was built November 1993 in the Oregon State University Research Forest, Corvalis, Oregon.

Purpose:

To conduct a long-term insitu exposure and monitor the resistance of ThermaFoam R-Control SIPs produced with ThermaFoam R-Control with Perform Guard.

Results:

None of the treated structures have termite damage. Non-treated structures built on the sites exhibited termite activity.