



Rubber Expansion Joint Filler for Concrete  
ASTM D1751-97, D1752-84 and D994, AASHTO M-213-95 and M-153-98

Summary of testing performed in September of 2001 by:  
**United States Department of Agriculture**  
**Agricultural Research Service**

Titled:  
“Penetrability of rubber joints by Formosan subterranean  
Termites in preliminary laboratory studies.”

**Test Subject:** REFLEX Recycled Rubber Expansion Joint Filler for Concrete  
Manufactured by The J D Russell Company

The Formosan subterranean termite is one of the most destructive and common termites in the U.S., causing millions of dollars in damage annually to wood products, living trees, dams, and various other construction projects. For the past 10 years, new approaches such as the use of barriers (physical, chemical, or combination of both) have been developed and commercialized to protect buildings and houses against subterranean termites. These barriers include the use of a wide array of materials such as sand, gravel, metal mesh, termiticides, synthetic materials, and membranes.

Among the materials available on the market that may be used in application as a control/ expansion joint to help reduce the significant damage being caused nationwide is REFLEX rubber expansion joint filler for concrete, made out of 100% recycled products, largely discarded tires. A laboratory test was conducted by the USDA to determine whether Formosan termites would be able to penetrate 1/2 inch thick portions of REFLEX.

*Formosan subterranean termite workers and soldiers were collected from ground traps installed near infested trees. 24 groups of 200 workers and 10 soldiers were manually transferred from the traps to experimental tubes. Each tube was made of clear, rigid schedule 40 PVC pipe. Ventilation was provided by drilled holes on the side of the tube, with a stainless steel screen soldered to the tube to cover the hole and prevent the termites from escaping. Each end of the tube was then tightly covered with an end cap made of REFLEX rubber expansion joint. A control group with styrofoam end caps was also provided. The tubes were also filled with 3 grams of a mixture of top soil, play sand, distilled water, and polyacridamide. Two treatments with 6 repetitions each were performed in dark conditions in a Percival Environmental chamber. Daily observations were done to observe penetration of end caps.*

*The termites were able to penetrate the styrofoam control units in under 48 hours, and successfully colonized and stayed alive for over 2 months. The REFLEX termites, on the other hand, took over 2 weeks to penetrate through the material, with the majority doing so through weak points or gaps in the union between the PVC tube and the REFLEX, and not actual boring action. Of those who bore through the REFLEX, almost all were dead within a 2 week period due to the consistency and lack of cellulose in the rubber, making it impossible to digest. From this study, the USDA concludes that REFLEX has the potential to reduce termite damage.*

For a complete copy of the test please contact The J D Russell Company at (800) 888-7425.



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