

Creating Installation Guidelines for A Particle Barrier for Formosan Subterranean Termites (Isoptera: Rhinotermitidae)

by

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The Formosan subterranean termite, *Coptotermes formosanus* Shiraki, is Hawaii's most economically important insect pest. For many decades, soil termiticide applications have been the principle means of preventing infestations by this insect. Residents of Hawaii have been documented as using more pesticides in and around the home than residents of other urban areas in the United States (Otagaki *et al.* 1970), and repeated soil treatments have contributed to this unfortunate situation. The frequency of these treatments also escalated (Tamashiro *et al.* 1990a) when cyclodiene termiticides were banned and replaced with insecticides having less residual activity (Tamashiro *et al.* 1990b, Grace *et al.* 1993a). With the advent of these newer termiticides also came shorter termiticide warranties and sometimes repeated treatments within a warranty period due to inadequate initial treatment and/or termiticide failure.

More recently, however, physical barriers consisting of graded gravel or sand particles have been developed and tested for efficacy with several species of subterranean termites (Grace & Yamamoto 1993b, Tamashiro *et al.* 1987a, 1987b, 1990a, 1991, Smith & Rust 1990, French & Ahmed 1993 French 1991, 1994, Ahmed & French 1996 Lewis *et al.* 1996, Su *et al.* 1991, 1992, Ebeling & Pence 1957, Ebeling & Forbes 1988, Miles 1997a, 1997b, Pallaske & Igarashi 1991). The Basaltic Termite barrier (BTB) was developed at the University of Hawaii and commercialized in Hawaii in 1987. However, its use as a substitute for termiticides has remained limited for a number of reasons. These include consumer unawareness of the product, a slight initial cost advantage for soil insecticide treatments, some unwillingness on the part of the pest control industry to accept and implement this non-chemical technology, and the absence of a BTB performance warranty from the licensed manufacturer. Architects and building contractors have also frequently had little understanding of installation requirements for this barrier, and improper installations have resulted in

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several failures. Subsequent evaluations of these faulty installations identified two problem areas: (1) the BTB was installed as a layer that was less than four inches thick (as is recommended), and/or (2) the BTB was contaminated with soil and rocks during the installation process. These evaluations led to the development of a 16-minute VHS video tape (Yates 1997) on proper pre-construction BTB installation beneath concrete slabs and as backfill for hollow block retaining walls. Detailed installation guidelines for several pre- and post-construction applications were also developed (Yates *et al.* 2000) and are now available to contractors, architects and homeowners.

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