

**THE INTERNATIONAL RESEARCH GROUP ON WOOD PRESERVATION**

Section 3

Wood Protecting Chemicals

**Laboratory Evaluation of the Formosan Subterranean Termite  
Resistance of Borate-treated Rubberwood Chipboard**

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# Laboratory Evaluation of the Formosan Subterranean Termite Resistance of Borate-treated Rubberwood Chipboard

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## Abstract

Both no-choice and two-choice 4-week AWWA laboratory tests were performed to evaluate the resistance of borate-treated rubberwood (*Hevea brasiliensis*) chipboard prepared from a commercial mill run, against the Formosan subterranean termite *Coptotermes formosanus*. Boric acid (technical granular) was incorporated into the boards during manufacture to achieve loadings of 1.0% or 1.1% boric acid equivalents (BAE). In the no-choice test, both the untreated chipboard and solid rubberwood controls sustained heavy termite attack (respective mean visual ratings of 4.6 and 2.7 on a 10-point AWWA scale), while the two retentions of borate-treated chipboard showed only light grazing (mean rating 9.2). The two-choice test demonstrated a preference of termites for solid rubberwood (mean rating 2.4) instead of untreated chipboard (rating 8.4), and for untreated (mean rating 8.4 and 8.8) instead of borate-treated (mean ratings 9.8 & 9) chipboards. Complete termite mortality in the presence of borate-treated chipboard in both laboratory tests demonstrates the toxicity of borates to Formosan subterranean termites.

**KEY WORDS:** Rubberwood, *Hevea brasiliensis*, *Coptotermes formosanus*, borate wood treatment, termite test, wood composite

## Introduction

The availability of cost-effective wood protecting chemicals with low environmental impact would offer a considerable marketing advantage to the wood preservation industry at a time when some of the traditional wood preservatives are being subjected to heavy regulatory scrutiny. Borates have relatively low mammalian toxicity and environmental impact, and are widely reported to effectively protect solid wood from decay fungi,