



FOREST AND WILDLIFE RESEARCH CENTER

FOREST PRODUCTS DEPARTMENT

**TESTING THE RESISTANCE TO SUBTERRANEAN TERMITES OF A
SOUTHERN YELLOW PINE SAPWOOD SPECIES TREATED WITH
HBS TERMITESTOP**



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TESTING THE RESISTANCE TO SUBTERRANEAN TERMITES OF A SOUTHERN YELLOW PINE SAPWOOD SPECIES TREATED WITH EXPERIMENTAL WOOD PRESERVATIVE HBS TERMITESTOP

INTRODUCTION

The purpose of this study was to determine the termite resistance of southern yellow pine wafers treated with an experimental wood preservative (HBS TermiteStop) by Forest Product Laboratory's personnel and tested against native subterranean termites, *Reticulitermes flavipes* (*R. flavipes*), following the American Wood-Preservers' Association Standard E1 (Section 1.1.1, No Choice test).

Test Organisms:

Field-collected native subterranean termites, *R. flavipes*, were obtained from field colonies, near Starkville, MS.

Samples:

5 untreated blocks of Southern yellow pine (SYP) sapwood
15 blocks of SYP wafers treated with an experimental formulation (HBS TermiteStop)

Replicates and Size:

SYP wafers measuring (25 mm x 25 mm x 6mm in the longitudinal direction) were cut from untreated sapwood.
Five replicates were used for each group.

Formulation and Concentrations:

HBS TermiteStop – 100%, 50% and 30%
Above concentrations were diluted with distilled water.

Treatment:

The wafers treated with only 30% solution used the vacuum for 5 minutes and soaked for 10 minutes. The remaining two concentrations, the wafers treated by soaking for 10 minutes. All wafers were dried at ambient temperature and pressure before and after to exposed to the termite.

Results:

Table 1 presents summary of individual weight losses and visual ratings of the treated and untreated SYP wafers after exposure to termites for four weeks. From Table 1, wafers treated with 100% of the formulation had a visual rating of 10. Wafers treated with 50% and 30% of the formulation had the visual ratings of 9 and 9.6 respectively. The rating of 3.2 on the untreated SYP wafers indicates that the termites used in the test were

healthy and active. Table 2 presents the summary of treatment data for SYP wafers

Table 1: Summary of individual weight losses and block ratings for treated and untreated of southern yellow pine (SYP) sapwood wafers (25 mm square by 6 mm longitudinal direction) after exposure to subterranean termites (*Reticulitermes flavipes*) for four weeks.

Formulation	Conc ^a (%)	Treatment	sample #	W1 ^b (g)	W2 ^c (g)	Weight loss (%)	Visual Inspection ^d			Block Ratings ^e
							T	P	M	
HBS Termite Stop	30	Vac / soak	11	2.9	2.81	3.10	+	u/b	x	10
			12	2.6	2.53	2.69	+	u/b	x	10
			13	3.18	3.07	3.46	+	u/b	x	10
			14	3.26	3.17	2.76	+	u/b	x	9
			15	3.27	3.18	2.75	+	u/b	x	9
			Average			2.95				9.6
	50	Soaked	6	3.37	3.19	5.34	+	u/b	x	10
			7	3.23	3.07	4.95	+	u/b	x	10
			8	3.02	2.86	5.30	+	u/b	x	10
			9	3.42	3.28	4.09	+	u/b	x	10
			10	3.34	3.15	5.69	+	u/b	x	10
			Average			5.08				10
	100	Soaked	1	3.48	3.33	4.31	+	u/b	x	10
			2	3.41	3.26	4.40	+	u/b	x	10
			3	3.23	3.07	4.95	+	u/b	x	10
			4	3.1	2.92	5.81	+	u/b	x	10
			5	3.1	2.93	5.48	+	u/b	x	10
			Average			4.99				10
Control	----	----	16	2.59	2.04	21.24	+	u/b	s	4
			17	2.39	1.69	29.29	+	u/b	s	0
			18	2.7	2.17	19.63	+	u/b	s	4
			19	2.46	1.95	20.73	+	u/b	s	4
			20	2.48	2.05	17.34	+	u/b	s	4
			Average			21.64				3.2

^a: THE CONCENTRATION IS BASED ON THE FORMULATION.

^b: W1: WEIGHT OF THE BLOCK BEFORE EXPOSURE TO TERMITES (AT ROOM TEMP.).

^c: W2: WEIGHT OF THE BLOCK AFTER EXPOSURE TO TERMITES (AT ROOM TEMP.).

^d: VISUAL INSPECTION:

T = TUNNELING - "+" = YES; "-" = NO

P = MAJORITY TERMITE POSITION - "u" ON SURFACE and
"b" BENEATH SURFACE

M = APPROXIMATE TERMITE MORTALITY -

"s" = SLIGHT (0% TO 33%)

"m" = MODERATE (34% TO 66%)

"h" = HEAVY (67% TO 99%)

"x" = COMPLETE (100%)

^e: BLOCK RATINGS:

10 = SOUND, SURFACE NIBBLES PERMITTED

9 = LIGHT ATTACK

7 = MODERATE ATTACK, PENETRATION

4 = HEAVY ATTACK

0 = FAILURE

Table 2. Summary of treatment data

Formulation	Conc. ^a (%)	Treatment	sample #	W1 ^b (g)	W2 ^d (g)	W2-W1 (g)
HBS Termite Stop	30	Vac/soak	11	2.54	5.63	3.09
			12	2.10	5.32	3.22
			13	2.68	5.88	3.20
			14	2.79	5.86	3.07
			15	2.75	6.00	3.25
			Average			3.17
	50	Soaked	6	2.58	5.62	3.04
			7	2.43	5.60	3.17
			8	2.15	5.57	3.42
			9	2.68	5.59	2.91
			10	2.54	5.63	3.09
			Average			3.13
	100	Soaked	1	2.69	4.57	1.88
			2	2.54	4.50	1.96
			3	2.43	4.33	1.90
			4	2.30	4.19	1.89
			5	2.32	4.21	1.89
			Average			1.90

^a: THE CONCENTRATION IS BASED ON THE FORMULATION.

^b: W1: WEIGHT OF THE BLOCK BEFORE TREATMENT (AT ROOM TEMP.).

^c: W2: WEIGHT OF THE BLOCK AFTER TREATMENT (AT ROOM TEMP.).