

BENZENE HEXACHLORIDE AS A TERMITÉ REPELLENT

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As an experimental animal for indicating the duration or permanence of the residual effect of an insecticide or other chemical, the West Indian dry-wood termite, *Cryptotermes brevis* (Walker), is of value because its reactions are not affected by the age of the wood sample after this has become thoroly seasoned. In the evaluation of benzene hexachloride (hexachlorocyclohexane), the reactions of this termite show why this chemical may be of outstanding value in the protection of seasoning wood or bamboo against insects which normally attack it only at this time, but against the attack of which no chemical is needed a few months later when the material is completely seasoned.

Thru the courtesy of Dr. Harry F. Dietz of E. I. Dupont de Nemours & Co., a one gram sample of the pure gamma isomer of hexachlorocyclohexane was made available for test early in 1947, together with the technical 12% gamma, for comparison with a mixture of alpha and beta isomers purchased from Eastman. By comparison with a large number of other chemicals which have been tested in the laboratory, using standard technique (1), very few are as repellent to termite attack for so long a period (147 days) at a dilution of 0.05% as is the gamma isomer of benzene hexachloride. Yet, despite the continued residual resistance of the gamma isomer at greater concentrations, the sample impregnated with 2% gamma from solution in benzol, submerged ten minutes, was eventually eaten within less than a year. Because of the minute amount of the pure chemical available, no wood sample impregnated with a greater concentration than 2% of the gamma could be prepared for test. In actual commercial practice, however, if 2% of any chemical impregnated in a most susceptible wood fails to be repellent to termites over a long period of time, that chemical must be summarily dismissed as unsuitable for use as a termite repellent, valuable as it may be over shorter periods in protecting the wood against the attack of other kinds of insects. In-

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deed, as the pure gamma isomer is not commercially available now, and presumably will not become available in the near future, the use of the less repellent technical grades of benzene hexachloride for wood preservation against termite attack is not to be recommended.

The records of some other chemicals used, or suggested for use as termite repellents, are given in the accompanying table, for comparison with benzene hexachloride.

TABLE NO. I

DAYS AFTER SUBMERSION TEN MINUTES IN SOLUTION BEFORE ATTACK BY THE WEST INDIAN DRY-WOOD TERMITE, *CRYPTOTERMES BREVIS* (Walker)

Dilutions of	0.05%	0.1%	0.2%	0.5%	1%	2%
Benzene Hexachloride:						
alpha & beta (Eastman)	4	5	7	10	15	44
12% gamma (DuPont)	23	37	44	91	260	264
100% gamma (DuPont)	147	189	249	259	303	334
D D T	25	27	29	35	37	uneaten over 4 years
Pentachlorphenol		10	13	273	337	uneaten over 4 years
Copper Pentachlorphenate	108	111	uneaten 40 months			
Tetrachlorxanthone	7	114	uneaten over a year			
Zinc Lake of Alizarin	5	uneaten over a year				

1. Wolcott, G. N., "Termite Repellents: a Summary of Laboratory Tests" Bulletin No. 73, Agr. Expt. Station, Univ. P. R., pp. 18, ref. 11. Río Piedras, October 1, 1947.