

INTERNATIONAL RESEARCH GROUP ON WOOD PRESERVATION

Section 2

Test Methodology and Assessment

**Above ground Microbial Decay Test of Biocide Treated and Untreated  
Wood Exposed to Danish and Humid Tropical Climates**

by

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## **Abstract**

A co-operative study was initiated to compare the aboveground field decay test of untreated and preservative-treated timbers under Nordic (Danish) and a representative humid tropical (Malaysian) environment according to CEN standard method. Matched specimens of untreated and both preservative-impregnated and surface-treated wood were simultaneously exposed at The Danish Technological Institute (DTI) and The Forest Research Institute Malaysia (FRIM) campuses. The aim was to demonstrate conclusively that accelerated decay of untreated wood in field tests according to CEN methods prevailed under such tropical environments. It could be of considerable use to the Scandinavian and European manufacturers of wood protecting biocides intending to challenge treated test specimens to this tropical condition. Of significance, by the ENV12037 lap-joint method, pine sapwood lap-joints were deteriorated to rating 3 (adopting a 5-point decay/stain rating scale) within 1.5 years at FRIM, while corresponding specimens exposed at DTI showed no signs of deterioration (rating 0). After 37 months (3 years), spruce was starting to decay at FRIM (rating 2) but not at DTI. Specimens vacuum pressure treated according to the Nordic Hazard Class of NTR Class AB were not deteriorated after 3 years' exposure at either DTI or FRIM. Painted specimens exposed at DTI already showed signs of peeling after 6 months, while initial peelings of the matched coated specimens exposed at FRIM were observed only after 1.5 years. The uniform tropical climate with a constant high relative humidity did not affect the adhesion of the coatings to the wood in the same way as the Danish climate. Indeed, there is a strong indication that the rate of fungal degradation (preferably soft rot decay and basidiomycete attack) is appreciably increased in Malaysian (humid tropical) compared to Danish (Nordic temperate) environments.

This accelerated field decay test in such a humid tropical climate is of considerable use for aboveground biological resistance field testing of biocides by European companies.

**Keywords:** Aboveground test, Decay test, Lap-joint, Biocide test, Tropical, Temperate