Research Article:

AN INSIGHT INTO BEECH WOOD (Fagus sylvatica L.) DEGRADATION IN OUTDOORS, ABOVE GROUND, LONG-TIME EXPOSURE
Part 2: In-Time Evolution of Degradation, Destructive Evaluation After 7 Years and Influence of Exposure Situation

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Abstract:
The paper is referring to some results of a modified L-Joint test, within which control and treated beech wood samples were exposed and examined periodically for 7 years. The long-term protective effects of some surface treatments and the in-time evolution of degradation in correlation with the risk of wetting were examined, the paper being divided in two parts. The first part presented the complex degradation of wood and coatings, at macroscopic and microscopic level after 7 years of outdoors, above ground exposure, employing a non-destructive evaluation system.

This second part of the paper deals with time sequences in beech wood degradation and in-time evolution of the degradation phenomena as a function of the exposure situation. Moreover, destructive evaluation of the samples after 7 years of exposure offered a real insight into wood degradation by revealing inner decay and discolouration as result of progress of these degradation types, from the tenon area or the samples surface towards their interior.

The surface treatments applied had only a limited protective effect on the evolution of degradation, while the differences between the different investigated areas in correlation with the risk of wetting, induced a large variability in the experimental data. However, this research revealed the utility and versatility of the employed modified L-joint test for a realistic evaluation of the potential of different treatments in improving beech performance in outdoor, above ground conditions

Key words: beech wood; modified L-joint test; decay; discolouration; wood cracking; in-time evolution; destructive evaluation; internal degradation.

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