Long term durability of the heartwood of seven common softwood species in above ground conditions - DTU Orbit (13/12/2018)

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The natural durability for wood in above ground use has been evaluated based on results after 11 years of exposure in a test site situated at the Danish Technological Institute in Taastrup, Denmark. Selected results for seven common softwood species exposed horizontally are reported. The test results cover samples with direct rain exposure (use class 3 of the European standard EN335-1:2006) and samples under cover (use class 2). Furthermore, results from sorption experiments on the original sample material employing Dynamic Vapour Sorption (DVS) equipment are shown. The purpose of this paper is to examine basic moisture properties of the wood species and correlate them with their observed long term performance.

The results show that natural durability for above ground use depends on a combination of sample type and wood species. This study shows that the relative durability of wood species, i.e. the long term performance of one species compared with others, can be heavily influenced by sample type. Based on the observed moisture behaviour in the first 5 years of exposure, the risk of decay is evaluated and correlated to the observed decay in the first 11 years of exposure. By comparing the results of covered and uncovered samples, the response of the different wood species to water vapour is concluded to be unimportant compared to the response to liquid water exposure for uncovered samples.

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