TALLINN UNIVERSITY OF TECHNOLOGY
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EFFECT OF HARDWOOD SPECIES ON PLYWOOD LIQUID COATING SURFACE PROPERTIES AND DURABILITY

LEHTPUULIIKIDE MÕJU VINEERI VEDELPEALISTUSE PINNA OMADUSTELE JA VASTUPIDAVUSELE

MASTER THESIS

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The use of surface coatings makes it possible to ensure the durability of various plywood-based products to external factors. Coatings based on film and liquid finishes such as paints and varnishes are more common. In this master's thesis, the effect of Estonian hardwood species on plywood liquid coating surface properties and durability was studied. The core birch plywood was covered with 1.5 mm thick birch, black alder and aspen veneer, then coated with two chemically different liquid coating systems and a commercial phenolic film in TalTech Laboratory of Wood Technology. The properties of coated plywood were tested for resistance to natural weathering, cracking, wet heat, water vapour, chemicals and for concrete adhesion, and the results were evaluated using colorimetry and visual observation. The results were analysed with ANOVA to determine if there are statistically significant differences.

The optimisation of liquid coating application and curing parameters for Estonian wood species was not fully achieved. Sufficient number of liquid coated plywood boards was prepared, but defects in the liquid coating detected by visual inspection revealed deficiencies in the coating application. The effect of hardwood species on plywood liquid coating performance was evident for natural weathering, cracking, and chemical resistance tests. The performance of plywood liquid coating was compared with commercial phenolic film.

Keywords: liquid coating, plywood, durability of plywood, hardwood species, master thesis