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Plywood Made from Plasma-Treated Veneers: Shear

Strength after Shrinkage-Swelling Stress

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Abstract

Thermally modified and unmodified beech veneers in untreated and plasma-treated state were immersed in melamine solution at different concentrations. The plasma pre-treated veneers exhibited significantly higher melamine loads than the untreated veneers at equal impregnation duration. Subsequently the veneers were manufactured into 5-layer plywood boards; the plywood samples then underwent an extreme testing procedure based on DIN-EN 314-1/2 in order to proof the bonding quality by means of shear strength. The plywood boards made of plasma pre-treated veneers exhibited up to 2.7-fold improvement in shear strength compared to plywood made of untreated veneers. Results differed markedly based on material (unmodified/thermally modified veneer) and concentration of melamine solution.

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