

SUMMARY

Birch is a widely spread wood species in the Nordic region. It is also one of the most commonly used species in plywood production. Grey alder (*Alnus incana*) and black alder (*Alnus glutinosa*) are wood species which belong to the birch family.

The aim of this research was to find out how grey alder and black alder veneer moisture content (MC) affects plywood strength properties. Plywood panels were made from the veneers that were dried in between certain MC range and with two different type of adhesives: Phenol formaldehyde and Lignin-based Phenol formaldehyde resin. Veneer MC targets was set 0-4%, 4-8% and 8-12% before gluing. Strength properties were tested according to European standards. Veneer properties were evaluated by wettability and cross-section tensile strength test. Plywood properties were evaluated by shear strength and bending strength test.

Grey alder and black alder plywood properties were compared to the birch plywood. It can be claimed that grey alder and black alder can be used successfully as cheaper alternative for birch plywood.

Grey alder and black alder strength properties are somewhat lower then birch plywood strength properties, but not significantly. Veneer sheets from grey alder or black alder can be successfully pressed into a plywood panel or for decorative purposes. Ideally grey alder and black alder veneer MC, before pressing it to plywood panel, should be 2-4%.