Study of interactions between PVAC adhesives and wood after thermo-mechanical (TM) modification

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In this work tests results of the impact of thermo-mechanical processing parameters on the formation of the wettability of beech veneer (Fagus sylvatica L.) and pine veneer (Pinus sylvestris L.) and indicators determined based on the adsorption theory of surface interactions such as surface free energy ($\gamma_s$) and work of adhesion (Wa) is presented.
Materials & Methods

- Each veneer was thermo-mechanically densified between the smooth and carefully cleaned heated plates of a laboratory press at temperatures of 150, 180, and 210°C and pressure of 3 MPa. Samples were densified for 3 minutes.

- The dynamic contact angle of unmodified veneers and TM sample veneers were measured with PG-3 goniometer using distilled water as the wetting liquid. A drop of water with a volume of 3.5 μl was applied on veneers by integrated micro-dispensing pump. After 60 seconds of contact with the substrate, the camera recorded its behaviour.

- For all tests adhesive was applied with the applicator on the modified surface of veneers at thickness of layers of 120 μm.
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<tr>
<th>Kind of the adhesive</th>
<th>Temperature [°C]</th>
<th>Time [s]</th>
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<td>5</td>
<td>10</td>
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<tr>
<td>EVA</td>
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Pine wood veneer (*Pinus sylvestris* L.)

Beech wood veneer (*Fagus sylvatica* L.)
Thank you for your attention

I invite you to look at my poster