FAILURE OF ADHESIVE OR COHESIVE WITHIN OIL PALM VENEER PLYWOOD BONDED WITH SELECTED RESIN

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CANDIDATE'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulation of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any other degree or qualification.

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ABSTRACT

FAILURE OF ADHESIVE OR COHESIVE WITHIN OIL PALM VENEER PLYWOOD BONDED WITH SELECTED RESIN

This study investigated the bond formation of adhesive on to the plywood form oil palm trunk (OPT) veneer. Adhesive used for the study were Urea Formaldehyde (UF), Phenol Formaldehyde (PF) and Polyvinyl Acetate (PVAc). The adhesive spread value was determined through the thickness of veneer. For bending strength the modulus of elasticity (MOE) and modulus of rupture (MOR) are significant at $P \leq 0.05$. PF resins have the highest MOE and MOR at 1881.17 MPa and 12.26 MPa respectively. The tensile shear shows strength UF>PF>PVAc. The result is highly significant at $P \leq 0.01$ and UF (0.51 MPa) passed the standard JAS 2014 requirement. Lastly wood failure shows a highly significant difference at $P \leq 0.01$, indication that covalent bonding and cohesive failure of PF and UF is stronger than PVAc (dipolar). The highest wood failure was PF with 78%.

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