

**PHYSICAL AND MECHANICAL PROPERTIES OF THREE  
LAYERED PARTICLEBOARD FROM KELEMPAYAN  
(*Neolamarckia cadamba*) AND SAWMILL SAWDUST**

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## ABSTRACT

### PHYSICAL AND MECHANICAL PROPERTIES OF THREE LAYERED PARTICLEBOARD FROM KELEMPAYAN (*Neolamarckia cadamba*) AND SAWMILL SAWDUST

The purpose of this study is to determine the physical and mechanical properties of particleboard from Kelempayan and sawmill sawdust. Sawmill sawdust used as raw material will able to solve the environmental pollution and Kelempayan (*Neolamarckia cadamba*) wood as an alternative raw material to replace the Rubberwood in the manufacture of particleboard. Sawmill sawdust was used for face and back of the particleboard when the resin content is 8 %, 10 %, and 12 % for density 500 kg/m<sup>3</sup>, 600 kg/m<sup>3</sup>, and 700 kg/m<sup>3</sup>. Kelempayan is used as core of the particleboard with consistency urea formaldehyde (UF) resin that is 10 %. The modulus of rupture (MOR), modulus of elasticity (MOE), internal bonding (IB), thickness swelling (TS) and water absorption (WA) will be determined as according to Japanese Industrial Standard (JIS A 5908:2003). The data has been analyzed by using analysis of variance (ANOVA) and duncan multiple range test (DMRT) to determine the significant differences of the variable used on the properties. Based on the finding in this study, mechanical properties revealed that board with higher density, 700 kg/m<sup>3</sup> and resin content 10%, shows the value for MOR (12.9 MPa), MOE (2001 MPa), IB (0.2 MPa) has surpassed the minimum standard for JIS A 5908:2003 for board type 13. For the physical properties, it does not exceed the minimum standard because this particleboard is suitable for interior products.

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