

**EFFECT OF THE DENSITY ON THE PROPERTIES OF  
PARTICLEBOARD FROM KENAF CORE AND  
KELEMPAYAN (*Neolamarckia* spp.) PARTICLES**

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## ABSTRACT

### EFFECT OF THE DENSITY ON THE PROPERTIES OF PARTICLEBOARD FROM KENAF CORE AND (*Neolamarckia* spp.) PARTICLES

This study investigates the potential of kenaf core and Kelempayan as a raw material for manufacturing particleboard. The mixture between 2 species wood particles used to manufacture panel for three different densities (300, 400 and 500 kg/m<sup>3</sup>) at different kenaf core ratio (30:70 and 50:50). The influences of density and ratio on mechanical and physical properties of particleboard manufactured were determined. The experimental panels were tested for their mechanical strength including modulus of elasticity (MOE), modulus of rupture (MOR), internal bonding (IB) and physical properties which is thickness swelling (TS) and water absorption (WA) were determine based on JIS A 5908: 2003, a Japanese Industrial Standard. For the result all of particleboard does not achieve the minimum MOE standard. Range of MOR for particleboard is 255 to 1140 MPa and it not achieve the minimum standard which is 2000 MPa. The range for MOR of particleboard is in range 0.919 to 5.212 MPa and it not achieve the minimum standard which is 8 MPa. For internal bonding of particleboard, the minimum requirement standard is 0.15 MPa. Based on the result, all of particleboards were achieve the minimum requirement given. Next, according to JIS A 5908: 2003 Type 8, the minimum requirement for thickness swelling of particleboard is 12%. Based on the result, all TS and WA of particleboard does not satisfy the minimum requirement, except for board at (300 and 400 kgm<sup>-3</sup>) with ratio 50 for TS in 2 hours that achieve the minimum requirement which is 10.748% and 11.409%. Mechanical and physical properties strength of particleboard were increased toward density of board and ratio used were increased.

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