PROPERTIES OF HYBRID PARTICLEBOARD FROM ACACIA (*Acacia mangium*) AND OIL PALM TRUNK (*Elaeis guineensis*)

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ABSTRACT

The purpose of this study is to evaluate the properties of the hybrid particleboard made from Acacia and Oil Palm Trunk and to evaluate the effects resin content and wood ratio on the particleboard properties. This study measured using Acacia (100%), then Acacia + Oil Palm Trunk (50%:50%) and Oil Palm Trunk (100%). This study used the middle part from both species and the target density was fixed at 650kg/m^3. Twenty seven board were produces for test physical and mechanical properties every sample to achieve target density 650 kg/m^3. The resin content of board were 7%, 9% and 11% and Phenol Formaldehyde resin (PF) was the resin used. All properties tested were the based on the European Standard (EN).On the mechanical properties, from of the three wood ratio, 100% Acacia show the highest value for Modulus of Rupture (MOR) from 11% resin content with 15.2 MPa and the lowest value from wood ratio 100% OPT, 7% resin content with 3.7 MPa. Meanwhile, the best value for Modulus of Elasticity (MOE) is from wood ratio 100% Acacia with 11% resin content and value of MOE is 2427 MPa. Then, for Internal bond (IB) result show that the highest value from wood ratio 100% Acacia from 11% resin content with value 0.49 MPa and the lowest value wood ratio 100% OPT 7% and 9% resin content with value 0.05 MPa. On the physical properties, the best value of Thicknes Swelling (TS) from wood ratio 100% OPT (11% resin content) with value 7.98% and the less value from wood ratio 100% Acacia (7% resin content) with value 13.89%. Then, the best value of Water Absorption (WA) from wood ratio 100% Acacia (9% resin content) with 62.24% and the less value from wood ratio 100% OPT (7% resin content) with 81.38%. All of the sample from mechanical properties achieved the standard compared sample from physical properties.

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