PROPERTIES OF ORIENTED STRAND BOARD (OSB) FROM Acacia mangium AND RUBBERWOOD

By

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Thesis Submitted in Partial Fulfillment of the Requirement for the Degree of Bachelor of Science (Honors) Bio-Composite Technology in the Faculty of Applied Sciences Universiti Teknologi MARA

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ABSTRACT

This study used Acacia mangium and rubberwood species as the raw materials in manufacture of oriented strand board (OSB). The objectives of this study were to determine the physical and mechanical properties of OSB using Acacia mangium and rubberwood, and effect of different board densities (600 kg/m³ and 700 kg/m³) and wood species ratio on properties. In this study, phenol formaldehyde (PF) was use as a binder and it was fixed at 9%. Oriented strand board was assessed for the mechanical properties (bending and internal bonding) and physical properties (thickness swelling) according to European Standard (EN 300:1993). Mechanical properties revealed the highest MOR (34.18 MPa) and MOE (6 835.78 MPa) with higher board density of 700 kg/m³ from 100% Acacia mangium. However, the highest results for IB value was 1.32 MPa from L4 layer with lower board density of 600kg/m³. Furthermore, for the physical properties with density board of 600kg/m³ with 100% Acacia mangium strands point the lowest TS value with 27.24%. The results revealed that board density show significant effect on mechanical properties except for IB. However, TS values were not significant.

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