

**PROPERTIES OF *Acacia mangium* WOOD CEMENT BOARD IN
RELATION TO PARTICLE SIZE AND WOOD CEMENT RATIO**

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ABSTRACT

PROPERTIES OF *Acacia mangium* WOOD CEMENT BOARD IN RELATION TO DIFFERENT PARTICLE SIZE AND WOOD CEMENT RATIO

An experimental investigation was performed to determine the properties of wood cement board (WCB) made from *Acacia mangium* wood. Different wood particle size (0.5mm, 1.0mm and 2.0mm) and wood cement ratio (1:2.5 and 1:3.0) was applied. The target board density was set at 1300 kg m^{-3} . The physical (water absorption test and thickness swelling test) and mechanical (bending test and internal bonding test) properties of the WCB were evaluated. From this study, it showed that there is no significant different on the physical and mechanical properties of WCB except for internal bonding test when using different particle size. The result for modulus of rupture (MOR), water absorption and thickness swelling meet the requirement standard of MS544:2001. The application of different wood cement ratio also showed same result pattern, where there is no significant different for all testing. However, wood cement ratio 1:2.5 gave better modulus of rupture (MOR) if compared to 1:3.0. Higher cement content causes a general decrease in MOR, WA and TS values but modulus of elasticity (MOE) values to increase.