

**EFFECT OF PARTICLE RATIO OF PARTICLE BOARD  
FROM KENAF CORE, *LEUCAENA*, AND RUBBERWOOD**

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## ABSTRACT

### EFFECT OF PARTICLE RATIO OF PARTICLE BOARD FROM KENAF CORE, *LEUCAENA*, AND RUBBERWOOD

In this study, the use of kenaf core, *Leucaena*, and Rubberwood as potential sources of raw material for the production of particleboard are researched. The mixture of wood particles from three different species that was used in the production of panels with a fixed density of 700 kg/m<sup>3</sup> and three different kenaf core ratios (5%, 10%, and 15%). It was determined how the proportion of kenaf core in manufactured particleboard affected the mechanical and physical properties of the finished product. The experimental panels were put through a series of tests to determine their mechanical strength, such as their modulus of elasticity (MOE), modulus of rupture (MOR), and internal bonding (IB). Additionally, their thickness swelling (TS) and water absorption (WA) were measured in accordance with the JIS A 5908: 2003 standard, which is a Japanese industrial standard. As a consequence of this, every single type of particleboard satisfies the required level of minimum MOE. The MOR for particleboard can range anywhere from 2078 to 2131 MPa, and it can meet or exceed the minimum requirement of 2000 MPa. The MOR of particleboard falls directly somewhere in the range of 13 to 15 MPa, and it also manages to meet the bare minimum requirement of 8 MPa. Next, 0.15 MPa is the minimum requirement standard for internal bonding (IB) of particleboard. This is the standard. According to the findings, each and every particleboard satisfied the barest minimum requirement that was stipulated. Next, the minimum requirement for the thickness swelling of particleboard is 12%, as stated in JIS A 5908: 2003 Type 8, which can be found here. According to the findings, none of the TS or WA of particleboard meet the requirements for the minimum acceptable level. The mechanical and physical properties, particularly the strength of the particleboard, were improved by increasing the density of the board and the ratio that was used.

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