

UNIVERSITY TEKNOLOGI MARA

**PHYSICAL AND MECHANICAL PROPERTIES
OF THREE-LAYER PARTICLEBORAD FROM
OIL PALM FROND (OPF)**

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Abstract

This study was undertaken to determine the properties of three layered particleboard from oil palm frond (OPF) with different ratio resin contain and particle sizes within face/back and core. Four different ratio of resin contain; 12:10:12, 12:8:12, 10:10:10 and 10:8:10 were used with particle size for core; 2mm and face/back; 1mm. Urea Formaldehyde (UF) was used as a binder with addition of wax and without wax. The target density was 500kg/m³. The properties of bending strength, internal bonding (IB), thickness swelling (TS) and water absorption (WA) were evaluated base on JIS standard. From the result, it shown that MOR and MOE value were perform better with particleboard using ratio 12:8:12 bonded with UF without wax. The IB strength was parallel with bending strength except for board using 12:10:12 ratio bonded using UF with addition of wax. TS and WA rate showed lower in particleboard using resin contain with ratio 12:8:12. In conclusion, the ratio of resin contain within the layered affected the properties of particleboard manufactured from OPF.