MANUFACTURING OF PARTICLE BOARD FROM OIL PALM FROND

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ABSTRACT

MANUFACTURING OF PARTICLE BOARD FROM OIL PALM FROND

Oil palm frond becomes new source of raw material for making particleboard in the Malaysian industries. Oil palm frond were used in the production of particleboard with 7%, 9%, and 11% content of phenol formaldehyde (PF) and particle sizes of 1.0 mm and 2.0 mm with target density 600 kg/m3. This study aims to investigate the physical and mechanical properties of particleboard made from oil palm frond at several percent of resin content and particle sizes. The particleboard produced was then tested for their mechanical and physical properties using the British standard methods. The modulus of rupture (MOR), modulus of elasticity (MOE), internal bonding (IB) and thickness swelling were tested to identify the aspects that affect the manufacturing of particleboard. Result for MOE testing of the project, particle size 2.0 mm higher is than 1.0 mm, and the resin of 11% is higher than 7% and 9% of resin content. For MOR 2.0 mm is higher than 1.0 mm while the resin at 11% is higher than 7% and 9% of resin content. For the internal bonding, particle size 1.0 mm is higher than 2.0 mm and 11% resin higher than 7% and 9% of resin content. Thickness swelling result of particle size 2.0 mm higher than 1.0 mm and the resin 7% higher than 9% and 11% of resin content. Lastly, water absorption result 11% of resin content is less than 7% and 9% of resin content and particle size 1.0 mm is better for water absorption.