

**PROPERTIES OF *Neolamarckia cadamba* PLYWOOD MADE WITH
PHENOL FORMALDEHYDE (PF) RESIN**

By

SITI KAMILAH BINTI JUNAIDI


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Signature of Candidate : 
Name of Candidates : Siti Kamilah binti Junaidi
Candidate's ID no. : 2014417876
Programme : Furniture Technology
Faculty : Applied Sciences
Thesis Title : Properties of *Neolamarckia cadamba* Plywood
Made with Phenol Formaldehyde (PF) Resin

ABSTRACT

PROPERTIES OF *Neolamarckia cadamba* PLYWOOD MADE WITH PHENOL FORMALDEHYDE (PF) RESIN

This study is about plywood manufacturing using fast growing species, which is Kelempayan and phenol formaldehyde resin was used as a bonding agent to attach the veneers together. This project focused on the old and new Kelempayan and veneer layout. The veneer was exposed to the surround environment within 1 month is considered as new veneer, while the old veneer is considered once it undergoes 3 months exposure to humidity. Veneer layout is classified into four different types which is all 3-ply Kelempayan, 3-ply tropical, core ply Kelempayan and core ply tropical veneers. Several tests following JAS 2014 were applied to the board (plywood), which were bending test (Modulus of Elasticity, MOE and Modulus of Rupture, MOR), tensile test and wood failure test. The result of Kelempayan age (exposure), shows that new Kelempayan veneers gave a better performance as compared to the rest of plywood boards. The highest performance of bending is 8019MPa (MOE) and 59MPa (MOR), for tensile test, 3.25MPa and 33% in wood failure test. For veneer arrangement, the best combination is core Kelempayan when it showed the highest value for MOR (69.43MPa) and 6.5% in wood failure test. For MOE of bending test, all 3-ply tropical plywood showed the highest value of 8964MPa and for tensile test 3-ply Kelempayan plywood was strongest with the value of 3.82MPa.

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