PROPERTIES OF PARTICLEBOARD MADE FROM RICE HUSKS AND COCONUT HUSKS IN RELATION OF VARYING RESIN CONTENT AND BOARD DENSITY

By

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Thesis Submitted in Partial Fulfillment of the Requirement for the Degree of Bachelor of Science (Hons.) Bio-composite Technology in the Faculty of Applied Sciences,
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CANDIDATE'S DECLARATION

I declare that the work in this final year project was carried out in accordance with the regulation of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. The final year project report has been submitted to any other academic institution or non-academic institution for any other degree or qualification.

In the even that my final year project is found to violet the condition mention above, I voluntarily waive the right of conferment of my bachelor degree and agree to be subjected to the disciplinary rules and regulation of University Technology MARA.

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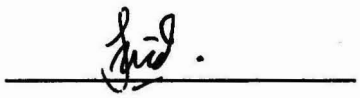

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Rice husk and coconut husk were discarded as agriculture residues that are available in large quantities and cheap. Moreover, the rice husks and coconut husks are estimated to be burned after harvest. Hereby, I propose the usage waste like rice husks and coconut husks as potential raw material for particleboard provide an alternative in reducing material from wood particles. This study determined the properties of particleboard made of a mixture of rice husks (50%) and coconut husks (50%). At the same time, the effects of board density (600kg/m^3, 700 kg/m^3, and 800 kg/m^3) and varying resin (Phenol formaldehyde) contents which are 8, 10, or 12 % were investigated. Based on the results modulus of rupture (MOR), modulus of elasticity (MOE), and internal bonding (IB) were increased by increasing resin content and board density except for thickness swelling (TS) and water absorption (WA) that were decreased for each increasing board density and resin contents. In this study the higher value of MOR (11.12 MPa) and MOE (1238.51MPa) is indicates from 800 kg/m^3 with 12% of resin content. The better value of IB is 0.125 MPa from 700 kg/m^3 at 10% resin content respectively. The particleboards were evaluated and the test conducted according to the European Standard (EN 312:2003).

Keywords: particleboard, Phenol formaldehyde, density, rice husks, coconut husks

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