PROPERTIES OF HYBRID PARTICLEBOARD FROM *Acacia mangium* AND PETAI BELALANG USING PHENOL FORMALDEHYDE RESIN

By

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CANDIDATE'S DECLARATION

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ABSTRACT

This study was carried out to investigate the properties of hybrid particleboard from *Acacia mangium* and Petai belalang using Phenol formaldehyde resins. The particleboard was produce from two types of species which are *Acacia mangium* and Petai belalang (*Leucaena leucocephala*) with different resin content (7%, 9%, and 11%) and the ratio of the percent wood species (100, 60:40, 50:50, and 40:60 %). The experimental particleboards were tested under two different testing conditions which are mechanical testing (MOR, MOE and IB) and physical testing (TS and WA) in accordance Japanese Industrial Standard (JIS A 5908:2003). In this study, the results showed, for the ratio of the percent wood species, there were significant interactions which had impact on all board properties and for different resin percentage only had significant effect on thickness swelling. Particleboard from 100% Acacia shows the highest value of MOR, MOE and IB compared with other boards. The physical properties of 100% Acacia had the best TS and WA. In conclusion, the properties from the particleboard made of 100% Acacia passed all the requirement of JIS A 5908:2003.

TABLE OF CONTENTS