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**UNIVERSITI TEKNOLOGI MARA**

**CHARACTERIZATION, PHYSICAL AND  
MECHANICAL PROPERTIES OF SURFACE  
MODIFIED RICE HUSK/POLYPROPYLENE  
COMPOSITE**

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## **ABSTRACT**

### **CHARACTERIZATION, PHYSICAL AND MECHANICAL PROPERTIES OF SURFACE MODIFIED RICE HUSK/POLYPROPYLENE COMPOSITE**

A study of polypropylene (PP) filled surface modified rice husk (RH) composite prepared via melt mixer on its characterization, physical and mechanical properties have been successfully investigated. 30 php of modified RH has been incorporated into PP to compare its properties with untreated RH filled composite at the similar amount. Surface modification of RH filler was done to improve the interfacial adhesion between PP/RH composite. Different treatment method was used such as hydrochloric acid, alkali sodium hydroxide, silane treatment and boiled treatment. FTIR spectra revealed the effectiveness of surface treatment on the RH filler by shifted peak of certain component in RH filler like lignin and hemicellulose. Tensile test, impact test and water absorption test have been done to determine the effect of surface treatment on RH on mechanical and physical properties of the composite. The result showed tensile strength, tensile modulus, elongation at break, impact strength and water absorption of composite filled treated RH was better than that of composite filled with untreated RH. Hence, the interfacial adhesion between filler and polymer matrix is better than after surface modification was done on the filler.