

Effect of vegetable oil type on the physical properties of polypropylene composites with wood flours modified by different vegetable oils

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Wood flour filled polypropylene (PP) composites are widely used as building materials and to make automobile parts. In this study, effect of vegetable oil type on the physical properties of PP composites with wood flours modified by different vegetable oils was investigated. Modification by soybean oil or palm oil was carried out to improve the hydrophobicity of the wood flour. Modified wood flours were analyzed by compatibility test, FTIR and TGA. PP composites with neat or one of the modified wood flours 20% were prepared by melt-blending and compression molding. Thermal and mechanical properties of the composites were measured by DMA, TGA, impact tester and UTM. Both vegetable oils could improve significantly the interfacial adhesion between the PP matrix and wood flour, resulting in improvement in the mechanical properties.