

Effects of recycled PP content on the physical properties of wood flour/PP composites

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Wood plastic composites (WPCs) are attracting a lot of interests because they are economic, environmentally friendly and show reasonable performance. By using recycled plastics solid wastes and energy consumption can be reduced. However, work done on using recycled plastics to produce WPCs is still limited. In this study, wood flour/polypropylene composites with different recycled PP contents were prepared through melt blending and compression molding. Maleic anhydride grafted polypropylene was used as a compatibilizer to enhance the interfacial interactions between wood flour and PP matrix. An organoclay was used as nanofillers to improve the physical properties of the WPCs. The physical properties of the WPCs were measured by UTM, DMA, TGA, and izod impact tester. Fracture surfaces of the WPCs were investigated by SEM. With increasing the content of recycled PP the physical properties of the WPCs decreased and the water absorption and thickness swelling of the WPCs increased. However, recycled PP could be used up to 50 % of PP matrix without considerable decrease in the performance of the WPCs.