

### Effects of adding organoclay on the performance of wood/polypropylene composites

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Wood plastic composites (WPCs) are economic, environmentally friendly, and show fairly good performance. Organoclay was incorporated as nanofiller to improve the performance of WPCs in this work. The WPCs were prepared by melt-blending followed by compression molding. A maleic anhydride polypropylene copolymer was used to improve interfacial adhesion between the PP matrix and wood particles. The physical properties of the WPCs were measured by UTM, izod impact tester, DMA, DSC, TMA and TGA. The nanostructures of the WPCs were investigated by XRD and SEM. XRD data showed an intercalated structure of the organoclay. The inclusion of the organoclay by just 1 phr affected considerably the physical properties, and crystallinity of the WPCs. The SEM images of the WPCs with the MAPP showed considerably improved interfacial adhesion between the PP matrix and wood particles. The weather resistance of the WPC system, which was analyzed by water absorption characteristics, was improved by adding the MAPP and the organoclay. Most physical properties of the WPCs were improved considerably by adding the organoclay just 1 phr.