Preparation and Physical Properties of Wood flour/Polyethylene/Clay Nanocomposites

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WPCs are attracting a lot of interests because they are economic, eco-friendly and show fairly good performance. Therefore, in this study, wood/HDPE composites comprising organclay as nanosize filler were prepared by melt-blending followed by compression molding and factors such as composition and processing conditions affecting the performance of the WPCs were investigated. To make the WPCs wood flours (70μm ~150μm), four types of HDPE, five types of MAPE and oranoclay (Cloisite-20A) were used. MAPP was used in principle to increase compatibility between the HDPE matrix and the wood particles and also improve the dispersion and exfoliation of the organoclay in the HDPE matrix. The physical properties of the WPCs were measured by UTM, I-zod impact tester, DMA, DSC, TMA, and TGA. SEM images of the WPCs with MAPE showed strong interfacial adhesion. The performance of the WPCs was improved by the incorporation of the organoclay.