

Processing and Physical Properties of Wood Flour/Polyethylene/Clay Composites

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Wood flour/polyethylene (PE)/clay composites were prepared by melt blending followed by compression molding. In this study, wood flour/PE/clay composites were made from selected conifers wood flour, PE, maleic anhydride polyethylene copolymer (MAPE) and organoclay. The composites were blended in a melt mixer equipped with a roller blades rotor at different mixing conditions (140°C~170°C, 60rpm, 15min and 21min). The fillers were added to the mixer as soon as the torque of preloaded PE melt had reached a steady state (~4min). MAPE was used as a compatibilizer to assist the exfoliation of the organoclay in the PE matrix and increase mechanical and thermal properties. The influence of the compatibilizer and organoclay was investigated, respectively. The mechanical and thermal properties of wood flour/PE/clay composites were measured by UTM, izod impact tester, DSC and TGA.