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Effect maleic anhydride polypropylene on properties of calcium carbonate filled polypropylene/ethylene propylene diene terpolymer composites

Abstract

Inorganic filler, calcium carbonate ($CaCO_3$) was used as filler in the polypropylene (PP)/ ethylene propylene diene terpolymer (EPDM) composites. The composites were compatibilized with Maleic anhydride grafted polypropylene (MAPP) in order to improve the properties. The addition of $CaCO_3$ at has increased the modulus of elasticity of composites but tensile strength and elongation at break of uncompatibilized composites decreased with increasing $CaCO_3$. The result shows that the compatibilized composites higher tensile strength and Modulus of elasticity but lower elongation at break compared to uncompatibilized composites. At 10 wt% $CaCO_3$ showed higher tensile strength of uncompatibiled and compatibilized composites. The morphology study from SEM analysis reveals that compatibilized composites show better interfacial adhesion between the filler and the matrix. The addition of MAPP has improved crystallinity of compatibilized composites.

Keywords; Calcium Carbonate, Compatibilizer, Composite, Ethylene Propylene Diene Terpolymer, Polypropylene (PP)