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Modified cocoa pod husk-filled polypropylene composites by using methacrylic acid

Abstract

The effect of filler modification using methacrylic acid (MAA) on polypropylene (PP)/cocoa pod husk (CPH) composites was studied. The performances of unmodified and modified PP/CPH composites were analyzed for torque development, tensile properties, and thermal properties. The presence of MAA increased the stabilization torque of the PP/CPH composites. The tensile strength and modulus of the modified PP/CPH composites were improved compared to unmodified PP/CPH composites, but the elongation at break was reduced. The crystallinity and thermal stability of the PP/CPH composites increased after modification with MAA. All the composite property changes were due to the improvement in filler-matrix adhesion and this was confirmed by scanning electron microscopy (SEM).

Keyword

Cocoa pod husk; Composites; Methacrylic acid; Polypropylene