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# Effect of maleic anhydride-grafted-polyethylene (MAPE) and silane on properties of recycled polyethylene/chitosan biocomposites

## Abstract

Chitosan-filled recycled polyethylene biocomposites were prepared using an internal mixer. The effect of maleic anhydride-grafted-polyethylene (MAPE) and silane of recycled polyethylene (RPE)/chitosan biocomposites on tensile properties, water absorption, morphology and thermal properties of recycledpolyethylene (RPE)/chitosan biocomposites were studied. The results of biocomposites with MAPE and silane improved the tensile strength and Young's modulus but reduced the elongation at break and water absorption. The presence of MAPE and silane show the evidence of better adhesion between filler and matrix through scanning electron microscopy (SEM) study of the tensile fracture surface of biocomposites. The incorporation of MAPE and silane also increased the crystallinity of RPE/chitosan biocomposites.

### Keywords

Biocomposites; Chitosan; MAPE; Recycled polyethylene; Silane