Properties of Chitosan-Filled Polypropylene (PP) Composites: The Effect of Acetic Acid

Abstract

The main objective of this research was to investigate the effect of chitosan content and chemical modification with acetic acid on mechanical and thermal properties of PP/Chitosan. It was found that the tensile strength, elongation at break and crystallinity of untreated PP/Chitosancomposites decreased with increasing filler content; however, Young's modulus and thermal stability increased. The treated chitosan with acetic acid have improved the tensile strength and Young's modulus of PP/Chitosan composites. The thermal analysis results show that chemical modified chitosan had increase thermal stability and crystallinity of treated PP/Chitosancomposites. The scanning electron microscopy (SEM) study of the tensile fracture surface of treated PP/Chitosan composites indicated that the presence of acetic acid increased the interfacial interaction between chitosan and polypropylene matrix.