

Effects of hydrophobization by soybean oil on the physical properties of polypropylene/cellulose composites

_____, *

(dskim@cbnu.ac.kr *)

Cellulose fiber and powder have attracted lots of interests as potential ecofriendly reinforcing fillers for various commodity polymers as well as biodegradable polymers. However, the very hydrophilic nature of cellulosic fillers makes them disperse poorly in a hydrophobic polymer matrix and induces a weak interfacial bonding between the fillers and the matrix. Therefore, in this study, the surfaces of cellulose powder were hydrophobized by soybean oil via an esterification reaction. Polypropylene/hydrophobized-cellulose composites were prepared by melt-blending followed by compression molding. Mechanical properties of the PP/hydrophobized-cellulose composites were investigated by UTM and izod impact tester. Thermal properties of the composites were investigated by TGA and DSC. The addition of hydrophobized-cellulose resulted in an increase in impact strength, elongation at break, tensile strength and modulus of the composites.