

The effect of NCO-polyol on the properties of low-density polyethylene/water hyacinth fiber (*Eichhornia crassiper*) composites

Abstract

Low density polyethylene (LDPE)/modified water hyacinth fiber (WHF) composites have been prepared by melt blending. All the composites were characterized by tensile test, differential scanning calorimetry (DSC), water absorption behaviour, thermogravimetric analysis (TGA) and scanning electron microscopy (SEM). The results indicated that LDPE/WHF composites with NCO-polyol as a coupling agent show higher values of tensile strength, Young's modulus and water absorption resistance but lower elongation at break than LDPE/WHF composites without NCO-polyol. The micrographs of SEM showed that the WHF were more widely dispersed in the LDPE matrix with the addition of the NCO-polyol as a coupling agent. It was also found that the modified WHF offers better thermal stability in the LDPE/WHF composites than unmodified WHF.