

Investigation of epoxidized natural rubber (ENR 50) as a compatibilizer on cogon grass filled low density polyethylene/soya spent flour

Abstract

Natural fiber reinforced composites are increasingly being used in various applications area. Therefore, the processing method and physical properties of these composites are very important parameters in product quality and quaranty. This paper focused on the tensile properties, Fourier transform infrared (FTIR) and water absorption of cogon grass (CG) with low density polyethylene (LDPE)/soya spent flour (SSF) composites. The tensile strength and elongation at break (E_b) of uncompatibilized CG with LDPE/ SSF decreased significantly with increasing of fiber content. However, the Young's modulus increased with increasing of CG loading. The presence of epoxidized natural rubber (ENR 50) as a compatibilizer increased the tensile strength, E_b and Young's modulus of the composites when compared to uncompatibilized composites. Fourier transform infrared results show distinguishable peaks for compatibilized and uncompatibilized composites. The water absorption for both uncompatibilized and compatibilized composites increased from day 1 until day 21. The presence of ENR 50 as compatibilizer showed lower water absorption percentage compared to uncompatibilized composites.

Keywords;

Cogon grass, Epoxidized Natural Rubber, Fourier Transforms Infrared, Tensile Strength, Water Absorption