Effect of fiber treatment on stress-strain behavior of kenaf fibers reinforced thermoplastic polyurethane composites

ABSTRACT

Natural fiber composites are getting much attention by researchers and industries. Natural fiber composites face the problem of incompatibility between fibers and polymers. Alkali treatment is the most common treatment for natural fiber composites. In this work, short ñKenaf (Hibiscus Cannabinus) Fiberò (KF) reinforced ñThemoplastic Polyurethane (TPU)ò was prepared using Haake Polydrive R600 internal mixer. After mixing, sheets for specimen cutting were prepared by compression molding. The aim of this work is to study the effect of alkali fiber treatment on stress-strain behavior of TPU/KF composites. Different alkali concentration was used, namely; 2, 4 and 6% NaOH. Tensile stress and strain were deteriorated with increase in NaOH concentration, while modulus increased slightly.

Keyword: Alkali treatment; Isocyanate treatment; Kenaf fibers; Stress strain behavior; Thermoplastic polyurethane