

Effect of organo-modified nanoclay on the mechanical properties of sugar palm fiber-reinforced polyester composites

ABSTRACT

The aim of this study was to investigate the effect of nanoclay on the mechanical properties of sugar palm fiber-reinforced polyester composites. Organo-modified nanoclay (OMMT) was dispersed in unsaturated polyester resin at various weight contents from 1% to 5% using a mechanical stirrer. Naturally woven sugar palm fibers were reinforced in the nanoclay-modified resin, which were then hot compressed to form the composites. The effect of the OMMT weight content on the tensile, flexural, and impact properties of the composites were analyzed. The addition of OMMT resulted in a noticeable improvement in all of the investigated properties, until a certain weight percentage. The tensile properties showed the best improvements at a 2% nanoclay content. However, the 4% nanoclay content resulted in the best enhancements to the flexural and impact properties.

Keyword: Sugar palm fibers; Polyester; Nanoclay; Nanocomposites; Mechanical properties