

Mechanical Properties of the Palm Fibers Reinforced HDPE Composites

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Abstract : Natural fibers are used in polymer composites to improve mechanical properties, substituting inorganic reinforcing agents produced by non-renewable resources. The present study investigates the tensile, flexural and impact behaviors of palm fibers-high density polyethylene (HDPE) composite as a function of volume fraction. The surface of the fibers was modified by mercerization treatments to improve the wetting behavior of the apolar HDPE. The treatment characterization was obtained by scanning electron microscopy, X-Ray diffraction and infrared spectroscopy. Results evidence that a good adhesion interfacial between fibers-matrix causing an increase strength and modulus flexural as well as impact strength in the modified fibers/HDPE composites when compared to the pure HDPE and unmodified fibers reinforced composites.

Keywords : palm fibers, polymer composites, mechanical properties, high density polyethylene (HDPE)

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