

Effect of epolene E-43 as a compatibilizer on the mechanical properties of palm fiber-poly(propylene) composites.

Abu-Sharkh, B. F.; Kahraman, R.; Abbasi, S. H.; Hussein, I. A.

Chemical Engineering Department, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia.

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Abstract

Composites of palm fibers and poly(propylene) (PP) were compounded in an extruder at 200°C. The composites were subsequently injection molded into std. tensile specimens for mech. characterization. The fracture morphol. of the specimens was analyzed by SEM. It was obsd. that the composite modulus increased with the increase of fiber content, indicating the existence of adhesion between PP and the much stiffer palm fibers. However, the adhesion was not satisfactory and resulted in a decrease in the composite tensile strength with fiber addn. The compatibilizer Epolene E-43 was used to minimize this incompatibility between the wood fibers and the PP matrix. The maleated PP additive enhanced the fiber-matrix adhesion, resulting in an improvement in composite performance. Also, small fibers showed better mech. properties than those of long fibers.