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Bidirectional Jute-Reinforced Polyester Composites: Influence of Sodium Bicarbonate Treatment on Static Mechanical Properties

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Abstract

The present work involved the fabrication of jute fiber-reinforced polyester composites by employing compression molding method and determined their tensile, flexural, and impact properties. The neat polyester (NP), untreated jute fiber (UTJF)/polyester composites, and sodium bicarbonate-treated jute fiber (SBTJF)/polyester composites were subjected

to the above-mentioned mechanical testings. The test results indicate that incorporating jute fiber into a polyester matrix improves the mechanical properties. This improvement is attributed to stiffness of the composites increased with the incorporation of jute fibers. Additionally, an attempt was made to improve the mechanical properties of the polyester by reinforcing it with SBTJF. The fibers' surface treatment had a beneficial effect on their mechanical qualities. This improvement in properties is attributed to the interfacial bonding at fiber-matrix interface, and it was evidenced in the morphological analysis.

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