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Effect of Surface Treatment on Physico-Mechanical Properties of Sisal Fiber-Unsaturated Polyester Composites

Authors : A. H. Birniwa, A. A. Salisu, M. Y. Yakasai, A. Sabo, K. Aujara, A. Isma'il

Abstract : Sisal fibre was extracted from Sisal leaves by enzymatic retting method. A portion of the fibre was subjected to treatment with alkali, benzoyl chloride and silane compounds. Sisal fibre composites were fabricated using unsaturated polyester resin, by hand lay-up technique using both the treated and untreated fibre. Tensile, flexural and water absorption tests were conducted and evaluated on the composites. The results obtained were found to increase in the treated fibre compared to untreated fibre. Surface morphology of the fibre was observed using scanning electron microscopy (SEM) and the result obtained showed variation in the morphology of the treated and untreated fibre. FT-IR results showed inclusion of benzoyl and silane groups on the fibre surface. The fibre chemical modification improves its adhesion to the matrix, mechanical properties of the composites were also found to improve.

Keywords : composite, flexural strength, matrix, sisal fibre
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