Effect of Hot Water Absorption on the Flexural Properties of Jute Mat Fiber Reinforced Polymer Matrix Composites

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Abstract:

Recycled needle punched natural jute fiber mats with 32 % by vol. fiber volume content were used as reinforcement for unsaturated polyester matrix composites. This study intended to study the durability of jute mat composites by investigating the flexural properties of jute mat composites including flexural strength and modulus under the effect of hot water absorption at 100oC for 96, 192, 384 h immersion times compared to the virgin specimens. The results showed that as the immersion time of the composites increases, the water absorbed by the composites increases and so the thickness swelling increases. As a result of that, the flexural strength and modulus of jute mats composites decrease compared to the virgin specimens. On the other hand, when the immersed specimens are dried for 6 hours, the flexural strength and modulus of the composites was recovered compared to the immersed specimens due to the decrease in the absorbed water content.

Keywords:

Jute mat composites; Flexural properties; Water absorption; Swelling; Interface

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