Tensile and bending properties of jute fabric/mat reinforced unsaturated polyester matrix composites

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Abstract:

Recycled jute fabric cloths as skin layers and jute mat as a thick core were used as natural fiber reinforcements for unsaturated polyester matrix composites via modifying the hand lay-up technique with resin pre-impregnation into the jute in vacuum. The effect of skin jute fabric on the tensile and bending properties of jute mat composites was investigated for different fiber weight contents. Moreover, the notch sensitivity of these composites was also investigated. The results showed that the tensile and flexural properties increased by increasing the fiber weight contents. As well as adding the jute fabric as skins for the jute mat composites has improved the tensile and bending properties with respect to those of jute mat reinforced unsaturated polyester matrix composites, whereas the notch sensitivity of the jute mat composites is lower than that of jute fabric/mat composites. Moreover, the fracture behavior of above-mentioned composites was clarified by SEM analysis.

Keywords:
Jute fabric; Jute mat; Unsaturated polyester; Mechanical properties; Notched tensile strength; Characteristic distance; Recycling

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