

MECHANICAL BEHAVIOR OF E – GLASS, JUTE EPOXY REINFORCED NATURAL HYBRID COMPOSITE

ABSTRACT

Now-a-days, the natural fibres from renewable natural resources offer the potential to act as a reinforcing material for polymer composites alternative to the use of glass, carbon and other man-made fibres. Among various fibres, jute is most widely used natural fibre due to its advantages like easy availability, low density, low production cost and satisfactory mechanical properties. For a composite material, its mechanical behaviour depends on many factors such as fibre content, orientation, types, length etc. Attempts have been made in this research work to study the effect of fibre loading and orientation on the physical and mechanical behaviour of jute/glass fibre reinforced epoxy based hybrid composites. A hybrid composite is a combination of two or more different types of fibre in which one type of fibre balance the deficiency of another fibre.

Composites of various compositions with three different fibre orientation (0° , 30° and 40°) are fabricated using simple hand lay-up technique. It has been observed that there is a significant effect of fibre loading and orientation on the performance of jute/glass fibre reinforced epoxy based hybrid composites. The developed hybrid composites undergo different kinds of tests. The result shows hybrid composites having good strength and stiffness compared to natural hybrid composites. The Finite Elemental Analysis was carried to determine the stress and compare the result with experimental data.

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