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Studies on Mechanical Behavior of Kevlar/Kenaf/Graphene Reinforced Polymer Based Hybrid Composites

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Abstract : When it comes to the selection of materials the knowledge of materials science plays a vital role in selection and enhancements of materials properties. In the world of material science a composite material has the significant role based on its application. The composite materials are those in which two or more components having different physical and chemical properties are combined to create a new enhanced property substance. In this study three different materials (Kenaf, Kevlar and Graphene) been chosen based on their properties and a composite material is developed with help of vacuum bagging process. The fibers (Kenaf and Kevlar) and Resin(vinyl ester) ratio was maintained at 70:30 during the process and 0.5% 1% and 1.5% of Graphene was added during fabrication process. The material was machined to thedimension ofASTM standards(300×300mm and thickness 3mm)with help of water jet cutting machine. The composite materials were tested for Mechanical properties such as Interlaminar shear strength(ILSS) and Flexural strength. It is found that there is significant increase in material properties in the developed composite material.

Keywords : Kevlar, Kenaf, graphene, vacuum bagging process, Interlaminar shear strength test, flexural test
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