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Influence of Stacking Sequence on Properties of Sheep-Wool/Glass Reinforced Epoxy Hybrid Composites

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Abstract : Natural fibers have been considerable demand in recent years due to their ecofriendly and renewable nature. The advantages of low density, acceptable specific properties, better thermal and insulate properties with low cost.In the present study, hybrid composite associating Sheep wool fiber and glass fiber reinforced with epoxy were developed and investigated the effect of stacking sequence on physical and chemical properties. The hybrid composite was designed for engineering applications as an alternative material to glass fiber composites. The hybrid composite laminates were fabricated by using hand lay-up technique at total fiber volume fraction of 60% (Sheep wool fiber 30% and Glass fiber 30%) and 40% reinforcement. The specimen preparation and testing were conducted as per American Society for Testing and Materials (ASTM) standards. Three different stacking are used. The result shows that tensile and bending tests of sequence of glass fiber between sheep wool fiber have high strength and maximum bending compared to other sequence of composites. At the same time better moisture and chemical absorption were observed.

Keywords : hybrid composites, mechanical properties, polymer composites, stacking sequence
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