

CHEMICAL RESISTANCE AND COMPRESSIVE PROPERTIES OF BANANA-PALMYRA FIBERS REINFORCED EPOXY-UNSATURATED POLYESTER BLENDED COMPOSITES

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Abstract

In order to improve the various mechanical properties and to reduce the cost of composites several methods have been adopted. Modifications or blending of matrix is one of these avenues. The polymer blends are formed by combining two or more polymers. In the present work the epoxy is blended with unsaturated polyester in different proportions. The resulting polymers blend systems often exhibit properties that are superior to any one of the component polymer alone. The pseudo-stem banana fiber and (borassus flabellifer) palmyra fiber are the natural fibers reinforced into this matrix. The natural fibers used in the present work possess light weight, high strength, good resistance to friction and withstand many chemicals and solvents. The variations of compressive strength & chemical resistance by varying the fibers content and epoxy-unsaturated polyester blend proportions was studied. The compressive strength & chemical resistance of fibers reinforced matrix blend composites was found to be higher than that of the matrix blend composites. Further the compressive strength & chemical resistance of both the matrix blend composites and fibers reinforced matrix blend composites increased to maximum at 90 % epoxy & 10% unsaturated polyester blend. The compressive strength & chemical resistance of 20% by volume content of banana-palmyra fibers reinforced matrix blend composite was found to be maximum when compared to compressive strength & chemical resistance of 10% & 30% by volume content of banana-palmyra fibers reinforced matrix blend composites.

Keywords : Epoxy, Unsaturated polyester, banana fiber, palmyra fiber, blend, compressive strength & chemical resistance properties.