

Effect of the Ratio, Weight, Treatment of Loofah Fiber on the Mechanical Properties of the Composite: Loofah Fiber Resin

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Abstract : The aim of this work is to study mechanical properties of composites based on fiber natural. This material has attracted attention of the scientific community for its mechanical properties, its moderate cost and its specification as regards the protection of environment. In this study the loofah part of the family of the natural fiber has been used for these significant mechanical properties. The fiber has porous structure, which facilitates the impregnation of the resin through these pores. The matrix used in this study is the type of unsaturated polyester. This resin was chosen for its resistance to long term. The work involves: -The chemical treatment of the fibers of loofah by NaOH solution (5%) -The realization of the composite resin / fiber loofah; The preparation of samples for testing -The tensile tests and bending -The observation of facies rupture by scanning electron microscopy The results obtained allow us to observe that the values of Young's modulus and tensile strength in tension is high and open up real prospects. The improvement in mechanical properties has been obtained for the two-layer composite fiber with 7.5% (by weight).

Keywords : loofah fiber, mechanical properties, composite, loofah fiber resin

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