

Flexural Analysis of Palm Fiber Reinforced Hybrid Polymer Matrix Composite

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Abstract : Uncertainty in the availability of fossil fuels in the future and global warming increased the need for more environment-friendly materials. In this work, an attempt is made to fabricate a hybrid polymer matrix composite. The blend is a mixture of General Purpose Resin and Cashew Nut Shell Liquid, a natural resin extracted from cashew plant. Palm fiber, which has high strength, is used as a reinforcement material. The fiber is treated with alkali (NaOH) solution to increase its strength and adhesiveness. Parametric study of flexure strength is carried out by varying alkali concentration, duration of alkali treatment and fiber volume. Taguchi L9 Orthogonal array is followed in the design of experiments procedure for simplification. With the help of ANOVA technique, regression equations are obtained which gives the level of influence of each parameter on the flexure strength of the composite.

Keywords : Adhesion, CNSL, Flexural Analysis, Hybrid Matrix Composite, Palm Fiber

Conference Title : ICMSME 2015 : International Conference on Materials Science and Mechanical Engineering

Conference Location : London, United Kingdom

Conference Dates : September 25-26, 2015