

MECHANICAL PERFORMANCE OF GREEN COCONUT FIBER/HDPE COMPOSITES BY USING FLEXURAL STRENGTH

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ABSTRACT

Many of our modern technologies demand materials with unusual combination of properties such as high strength to weight ratio, high stiffness, high corrosion resistance, high fatigue strength, high dimensional stability etc., these can't be met by conventional metal alloys.

Composites consists of two phases namely fiber and matrix. Fibers are discontinuous phase used to carry the load and matrix is continuous phase used to bind and transmit the load to the fibers. Fibers are produced with various materials such as metals, Glass, carbon and aramid etc.

The present work includes the processing, characterization of green coconut fiber reinforced HDPE composites. An investigation is carried out to evaluate the Mechanical properties such as Flexural strength by adopting Taghuchi's Design of Experiments (DoE) L_9 orthogonal array concept.

This investigation was set to analyze and develop a mathematical model using response surface methodology (RSM) for the observed responses i.e, Flexural strength (FS). The developed models were checked for their adequacy and significance of all the terms included in the models.

KEYWORDS: Green Coconut Fiber, Wood, Bio-Composites, HDPE, Flexural Strength Test