STRENGTH ANALYSIS OF POLYMER COMPOSITES WITH FIBER NUT ARECA REINFORCEMENT

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ABSTRACT

Research has been carried out on the effect of volume variations in the areca nut shell fiber, on the mechanical properties and fracture results of each composition. This study aims to analyze and measure the strength, including stress, strain and modulus of elasticity, on the volume variation of the areca nut skin fiber with a composition of 20%, 30%, 40%, 50% and 60%. By using the hand lying and random method. From the research, it was obtained that the highest stress value on the composition (20%) and (80%) epoxy, the highest average stress value was 16.95 MPa. By means of fracture, namely crack deflection, pull out and fix the hole. For the highest value of strain on the composition (60%) fiber and (40%) epoxy, the highest strain value was 0.024%. With the fault mode, namely crack deflection, pull out and bonding hole. Furthermore, for the modulus of elasticity in the composition of (40%) fiber and (60%) epoxy, the modulus of elasticity was 3.379 MPa with over load fault mode.

Keywords : *Composite, Areca, Nut Fiber, Epoxy, Tensile Strength.*