

ANALYSIS OF POLYMER COMPOSITE STRENGTH WITH STRENGTHENING OF PINEAPPLE LEAVES

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ABSTRACT

Composite is a material that is composed of two or more mixtures with different chemical and physical properties, so as to produce a new material that has different properties from the constituent materials. This study aims to determine the effect of the variation of the volume fraction of pineapple leaf fiber composites on the tensile strength of pineapple leaf fiber composites as a type of natural fiber. While the resin used is Q-Bond resin. The variation of fiber and resin volume fractions are 30% and 70%, 40% and 60%, 50% and 50%, 60% and 40%, 70% and 30%, respectively as many as 3 specimens. The composite printing process is carried out with wood molds according to ASTM D638-14 standards. The data collection method is done by testing the tensile on each specimen. The test results obtained the highest average value of the voltage (σ) of 15.99 MPa, while the lowest average of 12.11 MPa. For the highest average value of strain (ϵ) is 9.33%, while the lowest average is 6% and for the highest average modulus of elasticity (E) is 249.73 MPa, while the lowest average is 154.62 MPa.

Keywords: Composite, Pineapple leaf fiber, Q-Bond Resin, ASTM D638-14, Stress, Strain and modulus of elasticity.