Characterization of Bamboo Fiber and Glass Fiber Reinforced Composite Materials as an Alternative Raw Material Industry

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Abstract

In this thesis, conducted research to determine the characteristics bamboo fiber and glass fiber reinforced composite materials as an alternative raw material industry. The research is divided into several stages. The first stage its manufacture of composite specimens with volume fraction reinforced is 2.5%, 5%, 7.5%, 10%, 12.5% and make composite specimens without reinforcement or volume fraction 0% as a comparison. Polyester BQTN 157-EX Yukalac is polymer material thats as a matrix function. The methods make composites is used by hand lay-up. The second stage is testing composite materials. The tests of composite material is tensile test thats performed by using the standard ASTM D 638M-84 M-1 and the other is density test. The third stage is the data analysis and conclusion.

From the results experiment, we concluded that the influence of fiber volume fraction on the characteristics of composite samples did not show a trend that should be, this is because the number of voids on composite samples. Either composite material that reinforced by bamboo fiber nor glass fiber get to obtained value that nearly ideal characteristics at fraction volume 2 , 5%. Polymer composites that reinforced bamboo fiber at volume fraction of 2.5% has the most nearly ideal characteristics that have a tensile strength of 38.57 MPa, elasticity modulus of 1326.92 MPa and density of 1.203 gram / ml. It can be used as an alternative raw material industry thats
replacing steel kettle Rolan by using standard JIS G3103.

Keywords: Characterization, Bamboo, Glass, Reinforced, Composite, Alternative, Industry