

EFFECT OF WHITE CEMENT FILLER ADDITION ON IMPACT AND BENDING STRENGTH OF KEPOK BANANA STEM FIBER REINFORCED COMPOSITE WITH POLYESTER RESIN MATRIX

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ABSTRACT

In the development of times and technology that is very advanced, it is necessary for materials that strong, corrosion-resistant, and hard, yet lightweight, so composite materials were developed. composite materials were developed. Composite material is a material that consists of two main ingredients, namely matrix (binder) and fiber. At development of composite materials, natural fiber-reinforced composite materials are more in demand because of its superior properties. Seeing the potential of natural fibers that are very potential, the author wants to utilize the kepok banana stem fiber (musa paradisiaca) which is less maximized as a reinforcing material for composite materials by using a reinforcing agent. reinforcing composite material using a polyester resin matrix binder. The addition of white cement as filler material aims to increase the impact and bending values on composite materials with weight fraction variations of 0%, 10%, 20%, 30%, and 40%. This research aims to determine the impact and bending strength values of composites polyester resin with white cement filler reinforced with kepok banana stem fiber. The manufacture of this composite material uses the Hand Lay Up Technique. Impact strength value composite with polyester resin with white cement filler reinforced with reinforced with kapok banana stem fiber produces the highest absorption energy value of 2.073 J in the composite with the addition of 20% white cement filler while the lowest absorption energy is 0.369 J in composites with the addition of white cement filler white cement as much as 40%. Bending strength value polyester resin-matric composite with white cement filler reinforced with kepok banana stem fiber produced the highest maximum load value of 432.80 N on the composite with the addition of white cement filler as much as 10% while for the lowest The lowest maximum load value was 234.71 N in the composite with the addition of 40% white cement filler.

Keywords: *Composite, Kepok Banana Stem Fiber, White Cement.*