TENSILE AND IMPACT PROPERTIES OF HYBRID COMPOSITES REINFORCED WITH COCONUT COIR AND IJUK FIBERS FOR MOTORCYCLE MUFFLER COVER APPLICATIONS

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ABSTRACT

In the current era, many composite materials are being developed which are sourced from nature. Composite is a type of material that is made by combining two types of materials that have different properties into one new material. Composites reinforced with natural fibers continue to be researched and developed to become substitute materials for synthetic fibers. These composites are also widely used in various aspects of life, both in terms of use and technology, their application is used in automotive, aircraft and ship components. However, when testing was carried out, the strength value of natural fiber composites was less good than synthetic fibers, therefore the process of making natural fiber composites required weaving of the fibers so that the two fibers could be bonded well. Researchers want to combine coconut fiber and palm fiber by weaving the fibers to make a composite material. This aims to ensure that the attachment between the two fibers binds together evenly. In the process of making composite materials, pressing is carried out on the composite with the aim of eliminating voids so that the fiber and resin are firmly bonded. Hopefully, the test results have a higher value than synthetic fibers. Apart from that, it is also hoped that it can exceed the findings of previous researchers. This composite material is made using the Hand Lay Up Technique. The impact strength value of a polyester resin matrix composite with 45% fiber and 55% resin reinforced by a combination of palm fiber and coconut fiber produces the highest absorption energy value of 3.584 J and an impact value of 0.021 J/mm2. The tensile strength value of a polyester resin matrix composite with 45% fiber and 55% resin reinforced by a combination of palm fiber and coconut fiber produces a tensile value of 8.96 N/mm2.

Keywords*: composite, palm fiber, coconut fiber*