ANALYSIS OF IMPACT AND TENSION HYBRID COCONUT FIBER AND BANANA TREE HYBRID POLYESTER

Danang Mujian Priambodo

Study Program of Automotive Engineering, Engineering Departement of The State Polytechnic of Jember

ABSTRACT

Metallic materials and synthetic fibers which still dominate in the industrial sector need to be reduced for use, one of which is by utilizing fibers derived from nature as raw material for components. In this study, coconut coir fiber (SK) and banana tree fiber (PP) polyester were used and mechanical testing was carried out to determine the results of the strength and toughness of the shock load of the composite material. The mixture was varied into three variations of mixed percentages (SK30%&PP10%, SK20%&PP20%, and SK10%&PP30%) to find out the best variation of the combination of coconut coir fiber and banana tree fiber. The method of making specimens uses the hand lay-up and alkali treatment is carried out on the fiber.test impact of the composite variation SK20%&PP20% have the impact lowest impact is the first composite variation SK30%&PP10% with an average value of HI 0,3236 J/mm^2. The results of the tensile test of the SK20% & PP20% composite variation have the lowest tensile strength value compared to the SK30%% PP10% and SK10% & PP30% composite variation, the highest tensile strength value is found in the SK10% & PP30% composite variation with an average value of 29.3 N /mm^2.

Keywords: *coconut coir fiber and banana tree fiber, ImpactTest, Tensile Test, Composite Material, ASTM E23, ASTM E8.*