

Effect of Addition of Aerosil Powder on Tensile and Bending Test of Coconut

Fiber Composite Materials

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ABSTRACT

As an island nation and located in the tropics and supportive agroclimate conditions, Indonesia is the world's premier coconut producing country, with an area of coconut crops in Indonesia reaching 3.76 million Ha, with a total production estimated at 14 billion coconut grains, most of which (95 percent) are people's plantations. Traditionally coconut fiber sabut is only used for broom making materials, doormats, ropes and other household appliances. Technological developments, the physical-chemical properties of fibers, and consumer awareness to return to natural materials, make coconut fiber utilized into the raw materials of carpet industry, vehicle upholstery and dashboards, mattresses, pillows, and hardboards. Coconut fiber sabut is also utilized for erosion control. Coconut fiber sabut processed to be used as Coir Fiber Sheet used for kz car seat layer, Spring Bed and others. Therefore, in this study, it will be researched how far the strength of coconut fiber material reinforcement material is made board with matrix in the form of polyster with type (Bayesian Quantitative Trait Nucleontide) BQTN 157 with a mixture of aerosil powder. knowing the strength of the test material then done several tests namely tensile and bending tests. How to vary the percentage between polyster type BQTN 157 with coconut fiber and aerosil powder to get good results. How to determine the best size of coconut belt fiber as a test material. How to form coconut belt fibers with random methods. From the results of the test, it can be known that the highest tensile strength occurs at a ratio of 10: 90 in the random 10% aerosil mixture of 30.88 N/mm². The lowest tensile voltage value occurs at a ratio of 30: 70 at 3% aerosil cmpuran which is 4.40 N/mm². In the composite material fibers are cut 5 cm and 10 cm randomly, the results of the test showed a lot of fiber and aerosil mixture is very strong in the test results that are done namely tensile test and bending test.

Keywords : Composite Material, Coconut Cobut, Natural Fiber, Bending Test, Tensile Test,.