"Bending Strength Test on Jute Fiber Composite Material (Corchorus Capsularis) Based on Polyester Resin"

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ABSTRACT

Natural fibers have been developed as reinforcement in composite materials, because they have good strength and are more environmentally friendly. The use of fiberglass for fiber ships generally uses composite materials in the form of chopped strand mat (CSM) and woven roving (WR) fibers as its constituents. This research replaces chopped strand mat fiber with jute fiber, judging from the results of the bending test whether it meets the 2016 BKI fiberglass standard. The specimens are made using the hand lay up method with reference to the D7264 standard. From the results of the tests that have been carried out, it is found that the stress value on the specimen with the variation of the 00 angle is 118.461 N/mm2, the 45o angle is 119.370 N/mm2, and the 90o angle is 88.756 N/mm2. And for the modulus of elasticity, the variation of the 0o angle is 2546.522 N/mm2, the 45o angle is 1201.204 N/mm2, and for 90o the value is 1389.66 N/mm2. In the 2016 BKI Vol V standard, the standard stress value in the bending test is 150 N/mm2 and for the standard elastic modulus value is 6.850 N/mm2. From the results of all the angle variations that have been tested, there is not a single angle variation that meets the bending test standards from BKI.

Keywords: Jute fiber, fiberglass, composite, compressive strength