THE EFFECT OF JUTE FIBER ON THE IMPACT STRENGTH AND BENDING STRENGTH OF MATRIX POLYESTER

Moh. Syahrullah Al Farizi
Study Program of Automotive Engineering
Engineering Departement

ABSTRACT

The progress of composites is not only synthetic composites but natural composites using natural fibers are also progressing due to their superior properties. Composites consist of a matrix as a binder between fibers and fibers as reinforcement. The utilization of natural fibers that can be explored as a new material is jute fiber which has advantages such as being environmentally friendly and cheaper than fiberglass. Polyester resin is a polymer material used as a matrix and has the advantage of high absorption. This study aims to determine the effect of jute fiber on the impact strength and bending strength of polyester matrix composites with variations in fiber weight volume fractions of 0%, 10%, 20%, 30%, and 40%. The method of making specimens using the hand lay-up method and soaking the fibers using 5% NaOH for two hours. Composite materials were tested to determine their mechanical properties including impact testing and bending testing. The results of the impact test average the highest impact price at 40% fiber weight volume fraction of 0.076 J/mm^2. While the lowest average impact price at 0% fiber weight volume fraction of 0.015 J/mm^2. The results of the bending test averaged the highest bending stress at 40% fiber weight volume fraction of 74.79 Mpa. While the lowest average bending stress at 0% fiber weight volume fraction of 44.39 Mpa.

***Keywords**: Composite, Jute Fiber, Impact Strength, Bending Strength*