INVESTIGATION OF ENERGY ABSORPTION CAPACITY OF SANDWICH COMPOSITES SUBJECTED TO THE IMPACT LOADINGS

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ABSTRACT

Sandwich composites are used in many diverse areas like complex aircraft and automobile parts, wind turbine blades and cage systems. This is due to appealing mechanical properties such as acoustic damping, high bending stiffness, and excellent thermal insulation etc.

In the present work, sandwich composite plates were manufactured by using vacuum assisted resin infusion molding (VARIM). E-glass fabrics zero per ninety having density of 300 gram per meter square as the reinforcing material and Epoxy ARALDITE LY 1564 SP resin and ARADUR 3487B hardener as the matrix material were used. Specimens prepared with dimensions 100 mm square were subjected to low velocity impact (LVI). Impactor height is various to give a level of impact energy from 10J to 50J with constant impactor mass of 5 kg.

Contact force–time, contact force–deflection, contact force–impact energy, deflection- impact energy, time-impact energy and absorbed energy-impact energy have been depicted by using 10J, 20J, 35J and 50J impact energy levels.

Keywords: Sandwich composite, E-Glass fiber, low velocity impact, PVC foam, two-core