

The mechanical properties of pineapple leaf fibre (PALF)/carbon hybrid laminate composites at anti-symmetric ply orientation

Abstract

The mechanical properties of antisymmetric pineapple leaf fibre (PALF)/carbon hybrid laminate composites have been studied by researchers. The laminates were produced by vacuum infusion, and the void content easement was applied during validation. The laminates were tested on tensile (ASTM D3039) and flexural (ASTM D7264) testing. Analysing the results of tensile testing, it was determined that the laminate composed of PALF as the first layer and carbon as the second layer has the maximum tensile properties, at strength 110 MPa and modulus 6.5 GPa, respectively. After examining the flexural data, it was determined that the laminate made up of the first carbon and second PALF layers had the highest flexural strength and modulus, 235 MPa and 4.6 GPa respectively. Hence, the results imply that the stacking order influences the tensile and flexural properties. As concluded, stacking sequence has significant effect on anti-symmetric laminates.

Keywords

Antisymmetric; Carbon fibre; Flexural; Hybrid composites; PALF; Tensile