

Effect of Non-Crimp Fabric Structure on Mechanical Properties of Laminates

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Abstract : The textile preforms play a key role in providing the mechanical properties and gives the idea about selection parameter of preforms to improve the quality and performance of laminates. The main objectives of this work are to study the effect of non-crimp fabric preform structure in final properties of laminates. It has been observed that the multi-axial preform give better mechanical properties of laminates as compared to woven and biaxial fabrics. This study investigated the effect of different non-crimp glass preform structure on tensile strength, bending and compression properties of glass laminates. The different woven, bi-axial and multi-axial fabrics with similar GSM used to manufacture the laminates using polyester resin. The structural and mechanical properties of preform and laminates were studied using standard methods. It has been observed that the glass fabric geometry, including type of weaves, warps and filling density and number of layer plays significant role in deciding mechanical properties of laminates.

Keywords : preform, non-crimp structure, laminates, bi-axial, multiaxial

Conference Title : ICTCME 2015 : International Conference on Textile Composites, Materials and Engineering

Conference Location : New York, United States

Conference Dates : June 04-05, 2015