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Influence of Multi-Walled Carbon Nanotube on Interface Fracture of Sandwich Composite

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Abstract : Interface fracture toughness of glass-epoxy (G/E) PVC core sandwich composite with and without MWCNT has been investigated through experimental methods. Results demonstrate an improvement in interface fracture toughness values (GC) of samples with a certain percentages of MWCNT. In addition, dispersion of MWCNT in epoxy resin through sonication followed by mixing of hardener and vacuum assisted resin transfer method (VARTM) used in this study is an easy and cost effective methodology in comparison to previously adopted other methods limited to laminated composites. The study also identifies the optimum weight percentage of MWCNT addition in the resin system for maximum performance gain in interfacial fracture toughness. The results are supported by high resolution transmission electron microscope (HRTEM) analysis and fracture micrograph of field emission scanning electron microscope (FESEM) investigation.

Keywords : carbon nanotube, foam, glass-epoxy, interfacial fracture, sandwich composite
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