LOW VELOCITY IMPACT BEHAVIOUR OF CARBON/XPS SANDWICH COMPOSITES

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ABSTRACT: This work presents drop-weight impact properties of carbon fabric/extruded-polystyrene (XPS) sandwich composites reinforced with different ratios of carbon nanotubes (CNT). Sandwich composites were infused with epoxy resin containing 0.5% and 1% CNT during the manufacturing. The sandwich composites were impacted with 10J, 30J and 50J energies to compare their impact resistance and energy absorption properties. Impact test results showed that sandwich composites with CNT had higher energy absorption and deformation values with lower maximum loads compared to neat sandwich composite at 10J impact energy. However, neat sandwich composites had both higher energy absorption and maximum load than sandwich composites with CNT’s due to more severe impact damages and higher dent depths at 50J.

Key words: Sandwich composites, carbon nanotubes, impact resistance, carbon fabrics.

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