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Low velocity impact resistance and energy absorption of environmentally friendly expanded cork core-carbon fiber sandwich composites

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Abstract

This study investigates the use of expanded cork (a 100% natural lightweight agglomerate material) as a core material in composite sandwich structures with carbon fiber face sheets. The characterization performed focused particularly on energy absorption capability. Rohacell® 110 IG, a synthetic foam commonly used as a core material in high performance aerospace applications, was also used and characterized to compare the energy absorbing characteristics of the sandwich composites. Bending tests were done to examine the stiffness of the sandwich beams. Wavenumber and damping tests were performed to characterize the acoustic and vibrational damping properties of the composites. Both full penetration and partial penetration low velocity impact tests were

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