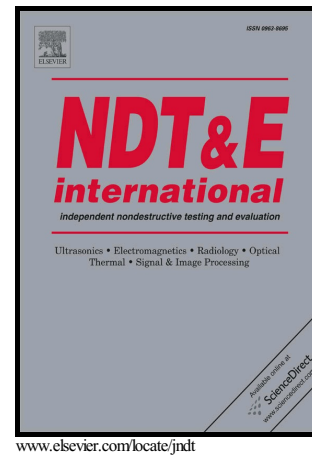


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Impact damaging of composites through online monitoring and non-destructive evaluation with infrared thermography

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Abstract

The aim of this work is to highlight the help offered by infrared thermography in the investigation of impact damaging of composites. In particular, infrared thermography is herein used with a twofold function: monitoring of impact tests and non-destructive evaluation of impacted specimens. Different types of composites are considered which involve changing of either the matrix from a thermoset to a thermoplastic one with also addition of a compatibilizing agent, or the reinforcement from carbon to glass. The obtained results show a different behaviour under impact of the different materials with fibres breakage only in thermoset matrix composites for the same impact energy. The presence of the compatibilizing agent in the thermoplastic matrix prevents the material from large deformation bringing it to behave more similar to a thermoset matrix based material. Post-processing of thermal images allows evaluation of the overall impact-affected zone.

Keywords

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