

# Accepted Manuscript

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PII: S0266-3538(17)32196-6

DOI: [10.1016/j.compscitech.2018.01.006](https://doi.org/10.1016/j.compscitech.2018.01.006)

Reference: CSTE 7032

To appear in: *Composites Science and Technology*

Received Date: 1 September 2017

Revised Date: 25 November 2017

Accepted Date: 4 January 2018

Please cite this article as: Yourdkhani M, Liu W, Baril-Gosselin S, Robitaille Franç, Hubert P, Carbon nanotube-reinforced carbon fibre-epoxy composites manufactured by resin film infusion, *Composites Science and Technology* (2018), doi: 10.1016/j.compscitech.2018.01.006.

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# Carbon Nanotube-Reinforced Carbon Fibre-Epoxy Composites Manufactured by Resin Film Infusion

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## Abstract.

Effective dispersion of carbon nanotubes (CNTs) in the polymer matrix of fibre-reinforced composites is challenging due to the re-agglomeration and filtration of CNTs that occur during the processing of composite materials. In this study, resin film infusion (RFI) process is used for manufacturing composite laminates and investigating the degradation of CNT dispersion during high-temperature processing of a thermoset fibre-reinforced composite. Dispersion stability is investigated by studying the re-agglomeration of CNTs in the resin caused by variations in resin physiochemical properties. Filtration of CNTs by fibre tows is studied by investigating two layup strategies. The effect of CNT dispersion on the mechanical and electrical properties of composites is evaluated by performing compression-after-impact experiments and electrical conductivity measurements.

**Keywords:** A. Hybrid composites, A. Carbon nanotubes, A. Carbon fibres, Resin film infusion, Compression-after-impact.

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