

# Accepted Manuscript

A review of extending performance of epoxy resins using carbon nanomaterials

Shan Liu, Venkata S. Chevali, Zhiguang Xu, David Hui, Hao Wang

PII: S1359-8368(17)31358-6

DOI: [10.1016/j.compositesb.2017.08.020](https://doi.org/10.1016/j.compositesb.2017.08.020)

Reference: JCOMB 5245

To appear in: *Composites Part B*

Received Date: 18 April 2017

Revised Date: 17 August 2017

Accepted Date: 30 August 2017

Please cite this article as: Liu S, Chevali VS, Xu Z, Hui D, Wang H, A review of extending performance of epoxy resins using carbon nanomaterials, *Composites Part B* (2017), doi: 10.1016/j.compositesb.2017.08.020.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



# A review of extending performance of epoxy resins using carbon nanomaterials

Shan Liu<sup>1</sup>, Venkata S. Chevali<sup>1</sup>, Zhiguang Xu<sup>2</sup>, David Hui<sup>3</sup>, Hao Wang<sup>1\*</sup>

<sup>1</sup>Centre for Future Materials, University of Southern Queensland, Toowoomba, QLD 4350, Australia

<sup>2</sup>China-Australia Institute for Advanced Materials and Manufacturing, Jiaxing University, Jiaxing 314001, China

<sup>3</sup>Department of Mechanical Engineering, University of New Orleans, New Orleans, LA 70148, United States

## Abstract

Carbon nanomaterials are receiving worldwide attention because of their multi-faceted superiority in thermal conductivity, flame retardancy, mechanical stability, electrical conductivity, and biocompatibility. In this review, a survey of the literature on extending performance of epoxy resins based on carbon nanomaterials is presented. The structure-performance relationships for different carbon nanomaterials modified epoxy are closely analyzed. The performance extension in mechanical, electrical, thermal conductivity, flame retardancy, antidegradation, and tribological properties of epoxy are reviewed in detail. Other application areas including biocompatibility, biodegradability, gas barrier properties, shape memory, and electromagnetic interference shielding are touched. The challenges and opportunities in carbon nanomaterials functionalized epoxy composites are also discussed.

## Keywords

A. Thermosetting resin; A. Nano-structures; Carbon nanomaterials; Epoxy;

---

\* Corresponding Author: [hao.wang@usq.edu.au](mailto:hao.wang@usq.edu.au). Tel: +61 7 3470 4102 Fax: +61 7 4631 2110. Centre for Future Materials, University of Southern Queensland, Toowoomba QLD 4350, AUSTRALIA

Download English Version:

<https://daneshyari.com/en/article/7212370>

Download Persian Version:

<https://daneshyari.com/article/7212370>

[Daneshyari.com](https://daneshyari.com)