

Accepted Manuscript

Polydopamine-bridged synthesis of ternary h-BN@PDA@SnO₂ as nanoenhancers for flame retardant and smoke suppression of epoxy composites

Wei Cai, Wenwen Guo, Ying Pan, Junling Wang, Xiaowei Mu, Xiaming Feng, Bihe Yuan, Bibo Wang, Yuan Hu

PII: S1359-835X(18)30194-5

DOI: <https://doi.org/10.1016/j.compositesa.2018.05.015>

Reference: JCOMA 5040

To appear in: *Composites: Part A*

Received Date: 27 December 2017

Revised Date: 4 May 2018

Accepted Date: 15 May 2018

Please cite this article as: Cai, W., Guo, W., Pan, Y., Wang, J., Mu, X., Feng, X., Yuan, B., Wang, B., Hu, Y., Polydopamine-bridged synthesis of ternary h-BN@PDA@SnO₂ as nanoenhancers for flame retardant and smoke suppression of epoxy composites, *Composites: Part A* (2018), doi: <https://doi.org/10.1016/j.compositesa.2018.05.015>

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.



Polydopamine-bridged synthesis of ternary h-BN@PDA@SnO₂ as**nanoenhancers for flame retardant and smoke suppression of epoxy composites**

Wei Cai ^a, Wenwen Guo ^a, Ying Pan ^b, Junling Wang ^a, Xiaowei Mu ^a, Xiaming Feng ^c,
Bihe Yuan ^d, Bibo Wang ^{a*}, and Yuan Hu ^{a*}

^aState Key Laboratory of Fire Science, University of Science and Technology of China,
Anhui 230026, PR China

^bInstitute of Environmental Materials and Applications, College of Materials and
Environmental Engineering, Hangzhou Dianzi University, 310018 Hangzhou, China

^cDepartment of Mechanical and Aerospace Engineering, Hong Kong University of
Science and Technology, Clear Water Bay, Kowloon, Hong Kong, PR China

^dSchool of Resources and Environmental Engineering, Wuhan University of
Technology, Wuhan, 430070, PR China

Corresponding Author.

*E-mail: wbibo@ustc.edu.cn; yuanhu@ustc.edu.cn; Fax/Tel: +86-551-63601664

Abstract:

The potential prospect of hexagonal boron nitride (h-BN) in the fields of polymer composites is severely limited by undesirable exfoliation efficiency and chemical inertness. Herein, bio-based dopamine was employed toward exfoliating bulk h-BN with hydrogen bond action and imparting a highly-active surface. With assistance of polypodamine, SnO₂ nanoparticles were in-situ synthesized and strengthened the interfacial interaction between h-BN and epoxy (EP) matrix. The integrated function of metal oxide/h-BN toward flame retardant and smoke suppression of polymer

Download English Version:

<https://daneshyari.com/en/article/7889403>

Download Persian Version:

<https://daneshyari.com/article/7889403>

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