

# Accepted Manuscript

Synergistic effects of segregated network by polymethylmethacrylate beads and sintering of copper nanoparticles on thermal and electrical properties of epoxy composites

Young-Han Bae, Min-Ji Yu, Minh Canh Vu, Won-Kook Choi, Sung-Ryong Kim



PII: S0266-3538(17)32363-1

DOI: [10.1016/j.compscitech.2017.11.021](https://doi.org/10.1016/j.compscitech.2017.11.021)

Reference: CSTE 6976

To appear in: *Composites Science and Technology*

Received Date: 22 September 2017

Revised Date: 13 November 2017

Accepted Date: 19 November 2017

Please cite this article as: Bae Y-H, Yu M-J, Vu MC, Choi W-K, Kim S-R, Synergistic effects of segregated network by polymethylmethacrylate beads and sintering of copper nanoparticles on thermal and electrical properties of epoxy composites, *Composites Science and Technology* (2017), doi: 10.1016/j.compscitech.2017.11.021.

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.

**Synergistic effects of segregated network by polymethylmethacrylate beads and sintering of copper nanoparticles on thermal and electrical properties of epoxy composites**

**Young-Han Bae<sup>a</sup>, Min-Ji Yu<sup>a</sup>, Minh Canh Vu<sup>a</sup>, Won-Kook Choi<sup>b,\*\*</sup>,  
Sung-Ryong Kim<sup>a,\*</sup>**

<sup>a</sup>Department of Polymer Science and Engineering, Korea National University of Transportation, Chungju 27469, Korea

<sup>b</sup>Materials and Life Science Research Division, Korea Institute of Science and Technology, Seoul 02792, Korea

\*Corresponding author. Department of Polymer Science and Engineering, Korea National University of Transportation, Chungju 27469, Korea.

\*\*Corresponding author. Materials and Life Science Research Division, Korea Institute of Science and Technology, Seoul 02792, Korea.

E-mail addresses: srkim@ut.ac.kr (S.R. Kim), wkchoi@kist.re.kr (W.K. Choi)

**Abstract**

We present a simple method to improve the thermal and electrical conductivity of epoxy composites via sintering of formic acid-treated Cu nanoparticles (NPs) in the presence of polymethylmethacrylate (PMMA) beads. The surface-treated Cu NPs, epoxy, and PMMA beads were mixed and then sintered under 20 MPa of pressure at 200 °C. The morphology of the Cu NPs and the thermal conductivity, volume resistivity, and thermal stability of the epoxy composites were investigated. The significant improvement of the thermal and

Download English Version:

<https://daneshyari.com/en/article/7214861>

Download Persian Version:

<https://daneshyari.com/article/7214861>

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