

Accepted Manuscript

Full Length Article

Through-thickness thermal conductivity enhancement of graphite film/epoxy composite via short duration acidizing modification

Han Wang, Shaokai Wang, Weibang Lu, Min Li, Yizhou Gu, Yongyi Zhang, Zuoguang Zhang

PII: S0169-4332(18)30468-9
DOI: <https://doi.org/10.1016/j.apsusc.2018.02.125>
Reference: APSUSC 38583

To appear in: *Applied Surface Science*

Received Date: 26 September 2017
Revised Date: 10 February 2018
Accepted Date: 12 February 2018

Please cite this article as: H. Wang, S. Wang, W. Lu, M. Li, Y. Gu, Y. Zhang, Z. Zhang, Through-thickness thermal conductivity enhancement of graphite film/epoxy composite via short duration acidizing modification, *Applied Surface Science* (2018), doi: <https://doi.org/10.1016/j.apsusc.2018.02.125>

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.



Through-thickness thermal conductivity enhancement of graphite film/epoxy composite via short duration acidizing modification

Han Wang^{1,2}, Shaokai Wang^{*1}, Weibang Lu², Min Li¹, Yizhou Gu¹, Yongyi Zhang^{*2},

Zuoguang Zhang¹

¹Key Laboratory of Aerospace Advanced Materials and Performance (Ministry of Education),
School of Materials Science and Engineering, Beihang University, No. 37 Xueyuan Road,
Haidian District, Beijing 100191, China.

Corresponding email: wsk@buaa.edu.cn

²Advanced Materials Division, Suzhou Institute of Nano-Tech and Nano-Bionics, No. 398
Ruoshui Road, Suzhou 215123, China.

Corresponding email: yyzhang2011@sinano.ac.cn

Keywords: graphite film, thermal conductivity, interface modification

Abstract

Graphite films have excellent in-plane thermal conductivity but extremely low through-thickness thermal conductivity because of their intrinsic inter-layer spaces. To improve the inter-layer heat transfer of graphite films, we developed a simple interfacial modification with a short duration mixed-acid treatment. The effects of the mixture ratio of sulfuric and nitric acids and treatment time on the through-thickness thermal properties of graphite films were studied. The modification increased the through-thickness thermal conductivity by 27% and 42% for the

Download English Version:

<https://daneshyari.com/en/article/7834768>

Download Persian Version:

<https://daneshyari.com/article/7834768>

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