Accepted Manuscript

Cost effective thermoelectric composites from recycled carbon fibre: From waste to energy

Priyanka R. Jagadish, Mohammad Khalid, Lau Phei Li, Mohammad Taghi Hajibeigy, Nowshad Amin, Rashmi Walvekar, Andy Chan

PII: S0959-6526(18)31591-9

DOI: 10.1016/j.jclepro.2018.05.238

Reference: JCLP 13095

To appear in: Journal of Cleaner Production

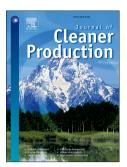
Received Date: 26 March 2018

Revised Date: 14 May 2018

Accepted Date: 28 May 2018

Please cite this article as: Jagadish PR, Khalid M, Li LP, Hajibeigy MT, Amin N, Walvekar R, Chan A, Cost effective thermoelectric composites from recycled carbon fibre: From waste to energy, *Journal of Cleaner Production* (2018), doi: 10.1016/j.jclepro.2018.05.238.

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.



1 2 3	Cost Effective Thermoelectric Composites From Recycled Carbon Fibre: From Waste to Energy
4	Priyanka R. Jagadish ^{1,2*} , Mohammad Khalid ^{2*} , Lau Phei Li ¹ , Mohammad Taghi Hajibeigy ³ ,
5	Nowshad Amin ^{4,5} , Rashmi Walvekar ³ , Andy Chan ⁶
6	
7	¹ Department of Chemical and Environmental Engineering, Faculty of Engineering,
8	The University of Nottingham Malaysia Campus, 43500, Semenyih, Selangor, Malaysia
9	² Graphene & Advanced 2D Materials Research Group (GAMRG), School of Science and
10	Technology Sunway University, No. 5, Jalan Universiti, 47500 Bandar Sunway,
11	Selangor Darul Ehsan, Malaysia
12	³ School of Engineering, Taylor's University, No. 1 Jalan Taylor's, 47500 Subang Jaya,
13	Selangor Darul Ehsan
14	Malaysia
15	⁴ Department of Electrical, Electronic and Systems Engineering, Faculty of Engineering and
16	Built Environment, The National University of Malaysia,
17	43600 Bangi, Selangor, Malaysia
18	⁵ Institute of Sustainable Energy, Universiti Tenaga Nasional, Jalan IKRAM-UNITEN, 43000
19	Kajang, Selangor, Malaysia
20	⁶ Department of Civil Engineering, Faculty of Engineering,
21 22	The University of Nottingham Malaysia Campus, 43500 Semenyih, Selangor, Malaysia
23	Corresponding Authors: khalids@sunway.edu.my
23 24 25	priyankajagadish@yahoo.com
25	Y
26	

27 Abstract

Within the framework of recycling and reusing carbon fibre, this study focused on the 28 fabrication of a thermoelectric composite encompassing recycled carbon fibre and two 29 30 thermoelectric fillers (i) bismuth telluride and (ii) bismuth sulphide. This study investigated 31 the effect of the concentration of bismuth telluride and bismuth sulphide fillers respectively 32 on the thermoelectric, morphology, structural and thermal stability of the recycled carbon fibre thermoelectric composites. The optimum thermoelectric filler concentration is 45 wt% 33 for both fillers, which resulted in a power factor of $0.194 \pm 9.70 \times 10^{-3} \,\mu W K^{-2} m^{-1}$ and $0.0941 \pm 10^{-3} \,\mu W K^{-2} m^{-1}$ 34 $4.71 \times 10^{-3} \mu W K^{-2} m^{-1}$ for recycled carbon fibre-bismuth telluride and recycled carbon fibre-35 bismuth sulphide composites respectively. This study exhibited the energy harvesting 36

 $\langle \rangle$

Download English Version:

https://daneshyari.com/en/article/8094374

Download Persian Version:

https://daneshyari.com/article/8094374

Daneshyari.com