

## Accepted Manuscript

An Assessment of Financial Viability of Recycled Carbon Fibre in Automotive Applications

Fanran Meng, Jon McKechnie, Steve J. Pickering

PII: S1359-835X(18)30105-2  
DOI: <https://doi.org/10.1016/j.compositesa.2018.03.011>  
Reference: JCOMA 4968

To appear in: *Composites: Part A*

Received Date: 28 November 2017  
Revised Date: 6 February 2018  
Accepted Date: 4 March 2018

Please cite this article as: Meng, F., McKechnie, J., Pickering, S.J., An Assessment of Financial Viability of Recycled Carbon Fibre in Automotive Applications, *Composites: Part A* (2018), doi: <https://doi.org/10.1016/j.compositesa.2018.03.011>



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.

# An Assessment of Financial Viability of Recycled Carbon Fibre in Automotive Applications

*Fanran Meng<sup>1\*</sup>, Jon McKechnie<sup>1</sup>, Steve J Pickering<sup>1</sup>*

<sup>1</sup>Department of Mechanical, Materials and Manufacturing Engineering, University of Nottingham,  
Nottingham NG7 2RD, UK

\*Corresponding author, E-mail address: fanran.meng@nottingham.ac.uk

## **Abstract**

Carbon fibre (CF) recycling has been demonstrated to achieve reductions in environmental impacts compared to virgin CF production, but there is limited understanding of the financial viability of recycling and reutilisation of recycled CF (rCF). In this work, cost analysis and identification of market opportunities for rCF are performed by evaluating the cost of recycling, composite manufacture, and applications in automotive industry. Cost impacts of using rCF as a substitute for conventional materials and competitor lightweight materials are assessed over the full life cycle, including in-use implications. Recovery of CF can be achieved at \$5/kg and less across a wide range of process parameters, approximately 15% of the cost of producing virgin carbon fibre. The life cycle cost results show that rCF composites, especially aligned rCF composites, give substantial cost reductions relative to virgin CF composites and even steel and aluminium.

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات