

Accepted Manuscript

Core/shell structure of electrospun polycarbonate nanofibers

Xiaofeng Wang, Yiyang Xu, Yongchao Jiang, Jing Jiang, Lih-Sheng Turng, Qian Li



PII: S0142-9418(18)30608-1

DOI: [10.1016/j.polymertesting.2018.08.009](https://doi.org/10.1016/j.polymertesting.2018.08.009)

Reference: POTE 5571

To appear in: *Polymer Testing*

Received Date: 12 April 2018

Revised Date: 20 July 2018

Accepted Date: 3 August 2018

Please cite this article as: X. Wang, Y. Xu, Y. Jiang, J. Jiang, L.-S. Turng, Q. Li, Core/shell structure of electrospun polycarbonate nanofibers, *Polymer Testing* (2018), doi: 10.1016/j.polymertesting.2018.08.009.

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.

Core/Shell Structure of Electrospun Polycarbonate Nanofibers

Xiaofeng Wang,¹ Yiyang Xu,^{1,2} Yongchao Jiang,¹ Jing Jiang,^{3*} Lih-Sheng Turng,² and Qian Li¹

¹*National Center for International Research of Micro-Nano Molding Technology, School of Mechanics & Engineering Science of Zhengzhou University, 450001, China.*

²*Wisconsin Institute for Discovery, University of Wisconsin-Madison, 53715, USA.*

³*School of Chemical Engineering and Energy of Zhengzhou University, 450001, China.*

Abstract

Internal structure is the key to tailoring the performance of electrospun (ES) nanofibers. However, it still remains very challenging to characterize the structures inside ES fibers. In this study, ES polycarbonate (PC) nanofibers were successfully cut open along and across the fiber axis by embedding. The characterization results revealed that these sections exhibited a heterogeneous core layer structure was formed due to the phase separation. A clear core/shell-like structure consequently formed, which is caused by the different evaporation behavior. The thickness of the shell layer slightly decreased with decreased fiber diameter, while the core layer showed a dramatical linear decrease. The dominant part was switched from the heterogeneous core layer to shell layer with high molecular orientation, which enables the production of nanofibers with superior properties.

Keywords: electrospinning, polycarbonate, nanofiber, core/shell structure

Corresponding authors: jiangjing@zzu.edu.cn

Download English Version:

<https://daneshyari.com/en/article/7824551>

Download Persian Version:

<https://daneshyari.com/article/7824551>

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