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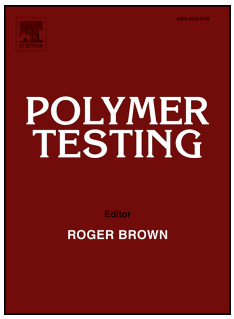

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Core/Shell Structure of Electrospun Polycarbonate Nanofibers

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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 hetereogeneous core layer structure was formed due to the phase separation. A clear core/shell-like structure consequently formed, whic 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

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