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Systematic parameter study for ultra-fine fiber fabrication via electrospinning process

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Abstract

Processing parameters effects on the morphology such as fiber diameter and its uniformity of electrospun polymer nanofibers was investigated. A processing map summarized effects of solutions properties and processing conditions on the electrospun nanofiber morphology was obtained. Polymer concentration, its molecular weight, electrical conductivity of solvents were found as dominant parameters to control the morphology. Based on the systematic parameter study, electrospun PLLA fibers as small as 9 Å nm were successfully produced.



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