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Electrospun polyimide nanofibers and their applications

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Abstract

Aromatic polyimides (PIs) are high-performance polymers with rigid heterocyclic imide rings and aromatic benzene rings in their macromolecular backbones. Owing to excellent mechanical properties and thermal stability, as well as readily adjustable molecular structures, PIs have been widely adopted for many applications related to electronics, aerospace, automobile, and other industries. In recent years, PI fibers prepared by electrospinning of polyamic acid (PAA) precursor nanofibers followed by imidization (commonly known as electrospun PI nanofibers) have attracted growing interests. Herein, the preparation, evaluation, and application of electrospun PI nanofibers are reviewed. PI polymers and the electrospinning technique are introduced first followed by the preparation of electrospun nanofibers of homo-PI, co-PI, blend-PI, and PI

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