

Review on electrospun nanofiber-applied products

ABSTRACT

Electrospinning technology, which was previously known as a scientific interdisciplinary research approach, is now ready to move towards a practice-based interdisciplinary approach in a variety of fields, progressively. Electrospun nanofiber-applied products are made directly from a nonwoven fabric-based membranes prepared from polymeric liquids involving the application of sufficiently high voltages during electrospinning. Today, electrospun nanofiber-based materials are of remarkable interest across multiple fields of applications, such as in electronics, sensors, functional garments, sound proofing, filters, wound dressing and scaffolds. This article presents such a review for summarizing the current progress on the manufacturing scalability of electrospun nanofibers and the commercialization of electrospun nanofiber products by dedicated companies globally. Despite the clear potential and limitless possibilities for electrospun nanofiber applications, the uptake of electrospinning by the industry is still limited due to the challenges in the manufacturing and turning of electrospun nanofibers into physical products. The recent developments in the field of electrospinning, such as the prominent nonwoven technology, personal views and the potential path forward for the growth of commercially applied products based on electrospun nanofibers, are also highlighted.