

TECHNOLOGY	INNOVATOR
Unique nanofiber production method	Company (University Spin-Off) North America

TECHNOLOGY

OVERVIEW

A technology that enables nanofibers to be produced at a much higher rate than conventional electrospinning. The process enables new applications for nanofibers.

MAIN CHARACTERISTICS

Description:

The Innovator has developed a technology that enables nanofibers to be produced at a much higher rate than conventional electrospinning. In addition, particles can be incorporated throughout the nanofiber matrix either through entrapment or encapsulation.

The particles can be nanoparticles or particles with diameters in the 150-200 micron range. Some smaller particles could be encapsulated within the nanofibers themselves, while others will be entrapped.

The entrapped particles are held within the matrix by the nanofibers, much like a fly in a spiderweb.

Traditionally, nanofibers have mainly been used for filtration purposes. While the Innovator can produce the thin layers of nanofibers on a substrate that would be useful for filtration, they are also able to produce thick mats (i.e. 2 mm thick) that do not require a substrate. This capability has opened up many new applications for nanofibers.

key aspects of the technology are:

- Offers cost-effective and high-throughput production of nanofibers;
- Nanofiber mats possess high strength, elasticity and are breathable;
- Process allows the inclusion of particles up to 150 μm (e.g. superabsorbent) at high loads (2:1 ratio (w/w) of particles to nanofibers)
- A continuous process (rolled goods up to one meter wide can be produced at varying lengths)

The proposed technology enables to produce a wide variety of polymer nanofibers. The type of solvent required will determine if the commercial scale-up is feasible or not. The Innovator R&D service department can help with every step of the process, from proof-of-concept to prototype development, and finally to product validation.

Opportunities: Suitable for a wide range of applications, such as textiles, filtration, medical (e.g. wound care), nonwovens.

Possible Applications:

Nanofibers for protection/ decontamination, Electrospun nanofibers for wound dressings, Nanofibers for the delivery of cosmetic actives, Nanofibers for the delivery of drugs.

Competitive Advantage:

The Innovator is one of the few companies that produce rolled goods, or nonwoven mats of nanofibers, which they offer to their customers for incorporation into their products. The technology proposed is highly productive compared to other electrospinning methods, which enables to produce nanofiber materials for a wider

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	variety of applications and at higher basis weights than were previously possible. Development Stage: Commercially available Intellectual Property: Both US and World patents on nanofiber products and product applications.
INNOVATOR	In addition to offering a range of standard products, the company also offers R&D services.