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Non-Water Soluble Electrospun Polymeric Porous Fibers Containing Nanoparticles to Purify Water

Electrospinning is a fiber production method that uses electricity to draw charged threads of polymer solutions into fiber diameters. This technique is used in a variety of water purification applications. Current water purification applications use a post-treatment on the electrospun fibers in order to create pores that catch impurities. If the post-treatment is not effective, the fibers will not be porous, allowing impurities to escape into drinking water. Therefore, there is a need to overcome these deficiencies, to create a better solution for enhanced water treatment.

Researchers at ASU have developed a new method to treat water. The process blends nanoparticles (NPs) into a polymer solution prior to electrospinning. The addition of NPs to the polymer solution enhances the mechanical strength and stability, and the thermal stability of the fibers. Moreover, this process creates fibers with very small diameters and pores that effectively remove contaminants, and dissolved organics and inorganics from water. In summary, this process is desirable because it enhances the quality of the fiber characteristics, and removes water impurities without the need of post-treatment.

Potential Applications

- Water treatment
- Air-purification

Benefits and Advantages

- Lower Costs – Removes the need to post-treat fibers
- Improves – Mechanical strength and stability, and thermal stability of polymeric fibers
- Prevents – Pollutants and contaminants from passing through fiber mesh

For more information about the inventor(s) and their research, please see

[Dr. Paul Westerhoff Directory Page](#)

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