

Methods for Production of Fluoropolymer Fibers

Due to its advantageous properties such as hydrophobicity, insulation and biocompatibility, PTFE nanofibers can be useful in a variety of applications ranging from textiles to biomedical applications.

This invention introduces a method to create 100% pure PTFE nanofibers. Having 100% PTFE fibers provides several advantages such as smaller diameters, porosity control, higher contact angles, ease of manufacturing, and lower cost.

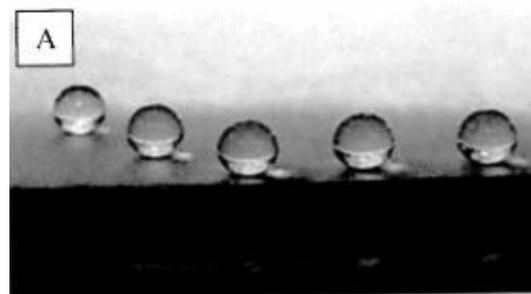
Problem

Materials such as Polytetrafluoroethylene (PTFE) have low dielectric constant and thus they are not susceptible to conventional fiber manufacturing processes such as electrospinning. Therefore, there is a necessity for a new method for producing PTFE nanofibers.

Solution

This invention introduces a method for fabricating fluoropolymer nanofibers and microfibers such as PTFE by utilizing centrifugal spinning. This method is able to create 100 % pure PTFE fibers by centrifugally spinning a fluorinated solution which is difficult using conventional methods.

Water droplets on a glass slide covered with a PTFE nanofiber mat



Value Proposition

- The PTFE fibers manufactured by this method have high production rates and superior properties.
- These fibers have potential application in biomedical devices due to their biocompatible nature

Competitive Advantages

- Small diameter fibers are produced at a much higher rate compared to other processes.
- Re-purposing of proven Forcespinning™ technology
- Porosity of the fibers can be controlled
- Fibers produced by this method are easy to manufacture even at large scales.
- Cost of manufacturing is lower due to elimination of complex processes and faster rates.
- PTFE fibers produced by this method exhibit high contact angles with water thus proving hydrophobicity.

Status of Development

- Lab prototype successful

IP Status

- Patent #US10087554B2
- Licensing available

For further information regarding this Technology please contact:
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