Electrospun Filter Media:
Effective Removal of Salt Aerosols

VANDERBILT UNIVERSITY
CTTC Center for Technology Transfer & Commercialization

Summary

Vanderbilt researchers have developed a specialized filter media to remove salt aerosols from the air. The filter media is able to be merged with other filter components to create a single filter for separating multiple types of airborne particles. Using the developed filter media provides more versatility and functionality to the manufacturing of filters for air and molecular purification products.

Addressed Need

The presence of salt aerosols in air can cause serious corrosion of structures and instrumentation in air-conditioned or ventilation-confined spaces. Existing filters are not designed to remove all salt particulates from the air, which is an especially important problem for installations near oceans, seas or salt lakes. The developed filter media, which is created from electrospun fibers, is capable of retaining salt aerosols and removing them from the air.

Technology Description

This unique type of electrospun media filter combines the benefits of high surface area nanofibers with the use of multiple materials in one filter. The high surface area to volume ratio of the nanofibers improves the material's ability to trap particles while simultaneously generating less impedance for airflow than standard medias. Utilizing electrospun filters with ion-exchangers for the removal of salt from water is among the many potential applications.

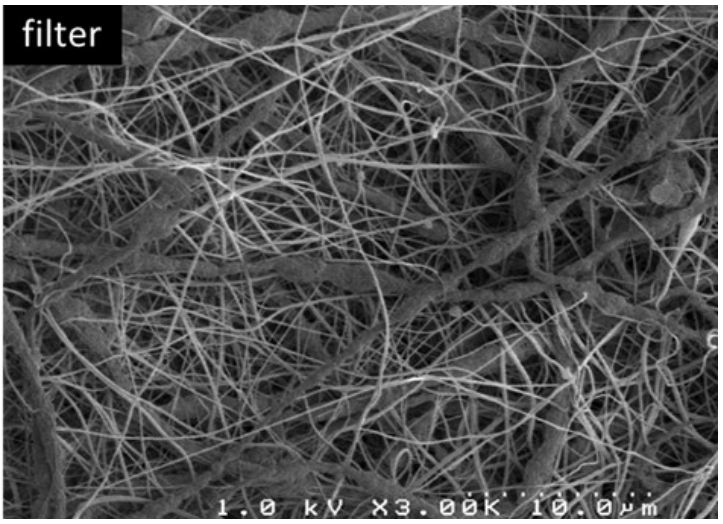
Technology Features

Multiple variations of highly advanced and effective multi-layered filters can be created using electrospinning, including:

- ◊ Media utilizing electrospun anion-exchange composite nano- or micro-fibers.
- ◊ Media in which the composite cation-exchange nano- or micro-fibers are co-spun with an acid-trapping component
- ◊ Media based on the co-spun dual fiber anion-exchange/cation-exchage system in order to separately trap both the salt anion and the cation.

Technology Development and Intellectual Property Status

- Patent application has been filed.
- Preliminary laboratory testing has been completed, and further development/scale-up can be conducted



SEM image of the electrospun dual fiber filter media is shown.

CTTC CONTACT:
Ashok Choudhury, PhD
(615) 322-2503
ashok.choudhury@vanderbilt.edu

INVENTORS:
Peter Pintauro, Ph.D.
Ryszard Wycisk, Ph.D.
VU Chemical and Biomolecular Engineering

VU REFERENCE: VU 15081

Visit **http://cttc.co/technologies** for available Vanderbilt technologies for partnering