

Researchers Make Chemical Warfare Protective Nanofibers out of Deck Sealer

August 28 2006

While cotton may be the fabric of our lives, Texas Tech University researchers may have discovered a polyurethane nanofiber technique that can save lives.

Dr. Seshadri Ramkumar, an assistant professor at The Institute of Environmental and Human Health at Texas Tech, and graduate student Thandavamoorthy Subbiah discovered a honeycomb polyurethane nanofabric by using electrospinning. The nanofabric, created by exposing polyurethane to high voltage, can not only trap toxic chemicals, but also be used in a hazardous material suit.

Ramkumar's findings are featured in the Sept. 5 edition of the *Journal of Applied Polymer Science*. The project was supported by the U.S. federal funds.

"These fibers are tiny," Ramkumar said. "They're about 1,000 times smaller than microfibrils. We are able to develop honeycomb-like structures with this method, which makes a mesh within a mesh. This may not only provide increased surface area, but also can trap toxic chemicals more efficiently. These fibers are yet to be tested for their protection capabilities."

Ramkumar and other researchers were able to observe self-assembled honeycomb nanomeshes that have not been reported before in the case of polyurethane nanofibers.

“This can be a very efficient filter against toxic chemicals, as well as a membrane for protecting people,” he said. “This will provide a significant boon to chemical protective clothing as well as a method to trap chemical warfare agents.”

Source: Texas Tech University

Citation: Researchers Make Chemical Warfare Protective Nanofibers out of Deck Sealer (2006, August 28) retrieved 27 April 2024 from <https://phys.org/news/2006-08-chemical-warfare-nanofibers-deck-sealer.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.