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Milestones in U.S. Chemical Weapons Storage and Destruction

Next Generation Counterterrorism and Military Wipe Developed

Chemical and Biological Sensor Interferent (CBSI) Database

Next Generation Counterterrorism and Military Wipe Developed

by John Davis, Texas Tech University

A newly developed decontamination wipe designed by researchers at The Institute of Environmental and Human Health (TIEHH) at Texas Tech University has proven itself the best for cleaning up chemical warfare agents and toxic chemicals.

The evaluation of the nonwoven dry wipe product, called Fibertect™, was performed as part of a study by the Lawrence Livermore National Laboratory using mustard gas and other toxic chemicals. Researchers found that the Texas Tech-created product outperformed 30 different decontamination materials, including materials currently used in military decontamination kits.

The results are published online today (Dec. 3) in the American Chemical Society's peer-reviewed journal, *Industrial & Engineering Chemistry Research* and titled, "Next Generation Non-particulate Dry Nonwoven Pad for Chemical Warfare Agent Decontamination."

This news comes after a blue-ribbon Congressional panel has recently concluded that it's likely that terrorists will use a weapon of mass destruction somewhere in the world by 2013.

By developing this product, TIEHH is meeting the specific needs of today's military as expressed in a 2004 report to Congress published by the U.S. Department of Defense. In this and the March 2005 annual report, the Department called for products such as this one to decontaminate people and military equipment as part of its Decontamination Science and Technology Modernization Strategy.

"These test results are another affirmation that Texas Tech researchers, particularly those working at The Institute of Environmental and Human Health, are some of the best in the world," said Kent Hance, chancellor of Texas Tech University System. "The new products developed from their research will help safeguard our troops against chemical hazards and assist emergency crews in cleanups from toxic accidents and environmental disasters."

Seshadri Ramkumar supervises the Nonwovens and Advanced Materials Laboratory at Texas Tech. He and other scientists with the Admiral Elmo R. Zumwalt Jr. National Program for Countermeasures to Biological and Chemical Threats have worked to create a product that will be an asset to military and homeland security efforts in the post-Sept. 11 environment. The program is funded by the U.S. Department of Defense.



Seshadri Ramkumar with the nonwoven wipe



Texas Tech wipe (left) and Particulate M291 (right)

"Needlepunch nonwoven technology has been used to develop this flexible, absorbent and adsorbent material that can be used not only as a decontamination wipe, but also as the liner of protective suits, filters and masks," said Ramkumar, who served as the lead author for the study. "The material is flexible, doesn't contain loose particles and is capable of cleaning intricate parts of everything from the human body to the control panel of a fighter jet."

The product features an activated carbon core sandwiched between an absorbent layer on the top and the bottom, he said.

"Dr. Ramkumar and others have worked hard to make us a leading research institution by developing this innovative and necessary product," said Ron Kendall, director of TIEHH and a co-author for the report. "This new fabric will help protect our troops on the battlefield as well as Americans here at home against biological and chemical warfare and terrorism threats."

The technology has been licensed by Texas Tech's Office of Technology Commercialization to Waco-based Hobbs Bonded Fibers. The company is organizing a global marketing team to expedite the commercialization of Fibertect™. The initial member of the team is The Bellator Group, which has a successful history of commercializing products into the military sector.

"The exciting news here is that the federal government saw a need for this product, and Texas Tech came up with a product to meet that need," said Carey Hobbs, president of Hobbs Bonded Fibers. "Now, the federal government is going to see an actual return on its money. You can buy this product today, and we're already manufacturing and exhibiting it to people in the marketplace." ♦

The Institute of Environmental and Human Health develops environmental and health sciences research and education at Texas Tech University and Texas Tech Health Sciences Center. For more information on the development of the wipe, contact Seshadri Ramkumar, associate professor at The Institute of Environmental and Human Health at Texas Tech University, (806) 445-1925 or s.ramkumar@ttu.edu.

Hobbs Bonded Fibers has been one of North America's most innovative and technically advanced fiber processing companies since 1953. For more information on the wipe production, contact Carey Hobbs, president of Hobbs Bonded Fibers, at (254) 741-0040, or carey@hobbsbondedfibers.com.

Press release dated December 3, 2008. Photos by Artie Limmer.