BY KATHLYN SWANTKO

Decontamination Wipe

Texas Tech's Technology Targets New Markets

THERE IS A NEW NONWOVEN TEXTILE WIPE THAT IS BEING recognized internationally as a protection against chemical and biological attacks. The wipe was developed by Texas Tech University in response to a call from the U.S. government for a new decontamination system to replace the currently used particulate decontamination kit, which was not convenient for cleaning sensitive equipment such as computers, cell phones and military vehicles.

The wipe was developed in 2004–2005 by associate professor, Dr. Seshadri Ramkumar (nicknamed Ram) at the Nonwovens and Advanced Materials Laboratory at Texas Tech. The wipe consists of a thin layer of activated carbon encased in absorbent fibers.

The Lawrence Livermore Lab, located in Livermore, CA, tested the wipe for effectiveness against sulfur mustard, which has been proven to be one of the most dangerous and difficult to remove chemical warfare agents. The excitement about the wipe began building at the end of 2008 when the Lab announced that tests on the Texas Tech wipe were found to be more effective at soaking up dangerous chemicals than 30 other products being tested.

Batting Clean Up: Dr. Seshadri Ramkumar (aka Ram) believes this research helps enter the nonwoven industry into a new ball game.

The wipe is now part of a new model portable kit that the Lawrence Livermore Lab has designed for people to use after a chemical attack to clean equipment, skin, and even sensitive eyes and wounds.

There is also potential interest in modifying the wipe technology for broad-based commercial use in expanded markets. "Because of our research, we're in a great position to put the nonwoven industry into a new ball game," explains Ram.

The wipe technology has been licensed by Texas Tech to the Waco-based Hobbs Bonded Fibers, one of North America's more innovative and technically advanced fiber-processing companies. Currently, Hobbs is in the process of organizing a marketing team for the new FIBERTECT nonwoven product to market it globally.

Texas Tech has also partnered with Enercon Industries Corporation, a Wisconsin-based high-tech equipment company, which will be using its atmospheric plasma technology to modify the nonwovens developed by Ramkumar and his team. The Enercon technology can change the surface of the material on a nano-scale to create different functionalities. At the same time, some of the reactive components in the plasma bond to the freshly exposed surface.

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According to Rory Wolf, Enercon's vice president, the process changes the chemistry of the surface of the nonwoven material, imparting new properties into it. This can create doorways inside the fabric that helps more air pass through, increasing the softness and comfort of the nonwoven material.

Ram believes that he and Enercon can create nonwoven fabrics for clothes and other uses that would feel as soft as cotton. Eventually, they plan to alter cotton and other fibers using the atmospheric technology. The process could be applied at the fiber and nonwoven stage.

Their dream is create new textiles that could repel liquid or absorb it, for use in personal safety products that are both wearable and safe to use. For more information on the FIBERTECT nonwoven wipe, contact Seshadri Ramkumar, at s.ramkumar@ttu.ecu; 806-445-1925. ✦

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