


## Tech performs groundbreaking research on cotton nonwovens

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Texas Tech's Institute of Environmental and Human Health is performing cutting edge research on new uses and applications of cotton nonwovens with continued support from the U.S. cotton industry and the Texas Department of Agriculture.

According to the Tech website, the Institute of Environmental and Human Health recently received \$40,000 from the Texas Department of Agriculture and \$15,000 from the U.S. cotton industry for two new projects involving cotton nonwovens.

Seshadri Ramkumar, an associate professor of environmental toxicology at the Institute of Environmental and Human Health, said they are trying to take Tech's cotton research to a whole new level.

"Texas Tech has one of only three facilities to my knowledge that is working specifically on cotton nonwovens," he said. "This is a big step towards the university's goal of achieving Tier One status."

According to the Workforce Solutions newsletter, research on cotton nonwovens originally began back in 2000 and 2001 when the Institute of Environmental and Human Health was expanded to include a new, high-tech, nonwoven fabric manufacturing and research facility.

"The total cost of the machine and facility was around \$2 million," Ramkumar said. "There are a total of eight people, including me, who are supported by the research grant to study the additional applications of cotton nonwovens."

Through continued research and development, Dr. Ramkumar created Fibertect, a patented nonwoven textiles decontamination wipe unique to cotton nonwovens research.

Roger Haldenby, vice president of Plains Cotton Growers Inc., has supported Professor Ramkumar with his on-going research.

"Development of Fibertect is opening new, non-traditional opportunities for Texas high plain cotton," Haldenby said. "Nonwovens from technical textiles can play a very important role in numerous areas."

Ramkumar said he believes cotton nonwovens have many different uses.

"Cotton nonwovens can be useful as liner material in jackets and in the soles of shoes," he said, "and it can be placed inside of walls to absorb sound."

Haldenby said nonwovens could also be valuable in aiding national defense, in the design of airplanes and automobiles, and for use in hospitals.

A big part of Fibertect's versatility is due to its absorbency abilities, Ramkumar said.

"It can absorb up 15 times its own weight," he said. "It is useful in cleaning up oil spills and is currently being used to clean soldiers' wounds to aid in treating contamination or infection."

The machine used to produce Fibertect is state-of-the-art, he said.

"The machine can take low quality cotton and turn it into high quality products," he said. "This increases productivity and helps to create value-added products."

The nonwovens machine also utilizes a special kind of needle technology unique to Tech.

"Texas Tech has the only facility to have needles on a curvature in its nonwoven machine," Ramkumar said.

He said cotton nonwovens could be used in a variety of single-use products because of its cheap production costs.

"When costs go down, consumption increases," Ramkumar said.

Justin Bailey, a junior psychology major from San Antonio, said anything that can be used to lower costs and make cheaper products is important, especially now in a struggling economy.

"The technology seems very useful in a lot of different ways," he said. "It's definitely good to see research like this receiving funding in a time when the economy is in a recession and everyone is suffering."

The main advantage of cotton nonwovens over other materials is that it is environmentally friendly, Ramkumar said.

"Cotton is bio-friendly, making it much better than plastic," he said. "The strength of cotton lies in its bio-degradability and the fact that it naturally degrades over time."



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