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NEW MEXICO BUSINESS WEEKLY

EXCLUSIVE REPORTS

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NM tech company sprays armor on military Humvees

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NMBW Staff

Engineering firm, Applied Research Associates Inc., has helped develop a spray-on coating that increases the protection and effectiveness of life-saving armor for soldiers in Iraq and Afghanistan.

The material, which is like a heavy plastic, was developed long before Defense Secretary Donald Rumsfeld was lambasted for the military's lack of armored vehicles and the Army's subsequent announcement that it would spend \$4 billion in the next six to eight months to ensure all American military vehicles in Iraq would be fully armored.

The northern Florida office of Albuquerque's Applied Research Associates (ARA) worked with the material's manufacturer, Alaska's Specialty Products Inc., and several military entities, to develop the polymer on an accelerated timetable between March and May of this year. Since last summer, the polymer has been used to "uparmor" nearly 100 doors on Marine Humvees in the field, according to ARA.

The material, called Dragonshield-HT, can be sprayed on to armor as it is being manufactured, or retrofitted after it has been deployed in the field. The material is applied to armor in one or two coats, dries in seconds, and absorbs energy generated by blasts from roadside bombs and projectiles, like rocket propelled grenades. Its developers say the Dragonshield is cheaper than steel, is lighter than most armor -- meaning more maneuverability for soldiers and less vehicle maintenance for mechanics -- and offers new protection against fragmentation, a leading cause of injury for a vehicle's occupants.

"This is a bit off the beaten path as far as applications go," says Shere Bush, vice president of new business development at Specialty Products, which manufactures the coating at its facility in Lakewood, Wash. The material was originally developed in 1989 for commercial uses, such as truck bedliners and non-skid flooring.

Bush credits ARA, in conjunction with military researchers, for the discovery of the new armor-improvement application.

"It is just amazing to us what they have shown it can do and what it can withstand," she says.

The Dragonshield-HT material was developed after a rapid research project was announced in March by the federal government's Technical Support Working Group, a multi-agency unit co-sponsored by the Department of Defense and the State Department that coordinates interagency research and development work for combating terrorism. The group wanted increased armor protection that could be ready for deployment in less than three months, could be retrofitted in a quick manner, and that offered the same protection and abilities of current upgraded armor.

Officials with ARA say they were able to meet and exceed those standards.

Angela Eubanks, the former head of the polymer development project for ARA, says it's not just the improved

protection at a lower price and weight that is amazing about the Dragonshield coating.

"The real story that has to do with this is the time line," she says. "It's not just one person at all that made this possible."

The polymer coating was tested at the Energetic Materials Research and Testing Center at the New Mexico Institute of Mining and Technology in Socorro.

Eubanks says researchers at Tyndall Air Force Base in Florida, the Naval Surface Warfare Distribution Center in Virginia and the U.S. Marine Corps Warfighting Laboratory, also in Virginia, were integral in developing the polymer's new application.

The spray-on technology brings the military's 0.202-inch high hard steel, the standard vehicle armor, up to the performance level of 3/8ths-inch rolled homogeneous armor -- a higher grade of armor.

Major Paul Swiergosz, a DOD spokesman, says he is amazed at the speed and ability of private entities like ARA to meet the technical solutions needs of the military with a product like Dragonshield.

"It's a great adaptation of existing technology that adds to the armor we have now," Swiergosz says.

"I've been under the impression it has been in use for a while," he adds.

Swiergosz says the military has avoided countering nationwide criticism over the lack of armor with the new Dragonshield technology because the DOD is not a political organization that looks for opportunities to save face.

"There are some things that happen that we don't necessarily talk about all the time," he says.

Shere Bush says Specialty Products is expecting an uptick in orders for the polymer because of the armor controversy.

"We can see it eventually turning into a large volume in terms of orders," she says.

To date, the company has sold about 41,000 gallons of the polymer to the military.

It costs about \$30 a gallon and covers between 12 and 15 square feet of armor.

Albuquerque's Applied Research Associates, founded in 1979, has nearly 900 employees working in offices nationwide and in Canada. The company's fiscal year 2003 revenues were \$120 million.

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