Experimentation and Data Collection For Improved Performance of Armor Solutions for Light Tactical Vehicles

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ABSTRACT:

The overall objective of this project was to increase the performance of armor solutions for light tactical vehicles. ARL scientists studied ways to maintain the same level of protection given by steel while minimizing the solution's weight. The threats we were mainly concerned with were blast and fragments from improvised explosive devices and rifle bullets. The goal of this project was to create an armor solution that weighed less than ten pounds per square foot.

The main focus of the research I was involved in was to test the armor solutions in a controlled environment. Armor solutions were created using a combination of materials. These solutions were then tested in an indoor range against bullets fired at realistic velocities. Due to the number of solutions that needed to be tested, most targets were tested on a pass/fail basis, and no attempt was made to achieve a V_{50} or multi-hit standard. The lightest successful targets will be subjected to further testing, but my time at ARL was too short to have a hand in this.

With the information gathered in this testing, we at ARL hope to improve the armor protection for HMMWV's and other light tactical vehicles. We hope to use technology to create practicable armor solutions that provide more protection than steel, but weigh much less. The armor solution created at ARL could easily find itself protecting the 18th Airborne Corps' Airborne Armored Ground Mobility Vehicle (AAGMV).

KEYWORDS: armor, light tactical vehicles, AAGMV

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