Case Study
Research and Development in Nanomaterials for Ballistic Protection

CUSTOMER: U.S. Department of Defense (DoD)
CONTRACT #: W911W6-06-C-0032
PROJECT NAME: SBIR Phase I and Phase II Project, "Light-Weight Material for Ballistic Armor"
PROJECT DURATION: 2006-2007

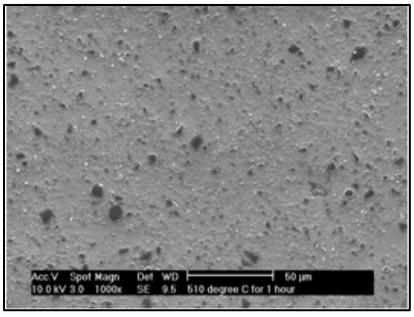
OVERVIEW

The US Department of Defense solicited a SBIR/STTR request for proposal (RFP) for the design and development of lightweight ballistic armor. Utilizing nanotechnology, Aegis Technology developed an ultra-high strength, lightweight, nano-structured metal matrix composite (NMMC) based on silicon carbide (SiC) for ballistic armor protection. Aegis Technology was awarded the project in 2006 and completed the project in 2007.

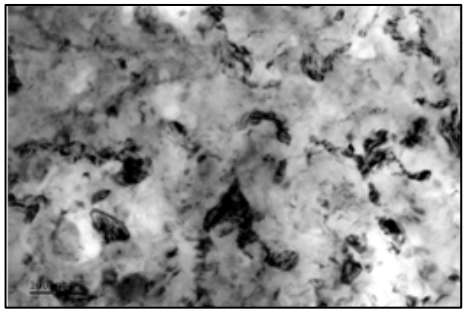
DELIVERABLES

Aegis Technology delivered several SiC NMMC samples. In the process, Aegis Technology conducted:

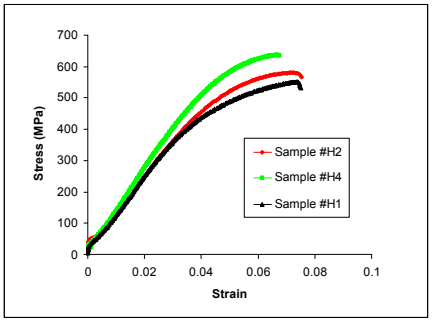
- Processing
- Scanning Electron Microscope (SEM) Characterization
- Transmission Electron Microscope (TEM) Characterization
- X-Ray diffraction (XRD) Analysis
- Mechanical testing (stress vs. strain, creep analysis, fatigue analysis)
- Ballistics testing



(a)



(b)



(c)

(d)

(e)

(a) SEM image of SiC NMMC, (b) TEM image, (c) Stress vs. strain curves
(d) Forged discs, (e) Ballistics testing

CONTACT
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