Advanced Phenolic Prepreg Manufacturing for Reduced Cost Rocket Nozzle Insulation

OBJECTIVE/SOLUTION:
To advance phenolic resin technology to production-scale prepreg capability. Will demonstrate lower cost material fabrication processes and superior material performance as insulation for rocket nozzles. Will develop full-scale prepreg production capability for new, improved benzoxazine (BXA)-based phenolic materials.

Achievements:
- Early development efforts for the project are on schedule and coordination with AMRDEC S&T project is providing good results. Prepreg materials were shipped to begin initial processing trials and evaluation. Benzoxazine (BXA)-based phenolics will offer the fire-safety of phenolic resin without void content and other processing challenges. Planning to develop silica infused fabric technology.

Benefits:
- Commercial availability of superior phenolic composites for use in rocket nozzles and other high temp/ablative insulation applications across DoD
- Transition to Guided Multiple Launch Rocket System (GMLRS) in 2018

Benefits (cont):
- Effort further develops alternate resin systems for silica cloth phenolic components, enables lower cost rocket nozzles, and addresses the producibility of a DoD-centric product

Transition and Weapon Systems/Secondary Items Impacted:
- Guided Multiple Launch Rocket System (GMLRS) and other missile/rocket systems with similar nozzle designs

Point of Contact: Army ManTech Manager, U.S. Army Research, Development and Engineering Command (RDECOM), Aviation Missile Research, Development and Engineering Center (AMRDEC), Manufacturing Science & Technology Division ATTN: RDMR-SEM, 5400 Fowler Road, Redstone Arsenal, AL 35898-5000