

Aluminized Explosive Formulation Manufacture Successfully Demonstrated on Twin Screw Mixer/Extruder

C2382 - Alternative Manufacture of PBXIH-18 Aluminized
Pressed Explosive



OBJECTIVE

The project objective is to develop and demonstrate an efficient manufacturing method using Naval Surface Warfare Center, Indian Head Division (NSWC IHD) twin screw mixer/extruder (TSE) capabilities to process an aluminized explosive formulation, PBXIH-18. PBXIH-18 was developed as a less sensitive replacement for Composition A3 in enhanced blast warheads including shoulder launched weapons systems.

PAY OFF

The benefits from this project include the development of an alternative manufacturing method for PBXIH-18 and will provide the Warfighter a seamless transition to the new source of PBXIH-18 for needed munitions. Additional benefits include:

- Increased efficiency in manufacturing explosive molding powder;
- Increased safety in manufacturing operations;
- Improved insensitive munitions (IM) characteristics with enhanced blast performance in the molding powder;
- Reduced cost due to more accessible manufacturing ingredients,
- Increased manufacturing capacity.

IMPLEMENTATION

The project included a review of current DOD manufacturing processes for aluminized explosive molding powder along with the development of manufacturing scenarios as well as manufacturing the PBXIH-18 explosive. In FY11, PBXIH-18 was successfully and safely manufactured and remotely granulated using twin screw mixer/extruder technology. Initial IM testing, granulation evaluation, and pressing studies have shown comparable results to current manufacturing methods. In FY12, required IM and validation testing of aged material was successfully completed. Testing on aged material showed results comparable to the material manufactured using the current manufacturing process. The manufacturing process has been shown to be a cost effective and efficient manufacturing method and there are transition opportunities to multiple DOD weapon systems. NSWC IHD will implement this technology into production for the Shoulder Fired Weapon System.

Period of Performance
Jun 2010 to Dec 2012

Stakeholder
PM AMMO

Performing Activity
EMTC

Point of Contact
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IHD Twin Screw Mixer Extruder (TSE)



Navy TSE Manufactured PBXIH-18



Shoulder Fired Weapon System

Total ManTech Investment
\$860,000

Please visit the EMTC Web site:

<http://www.navsea.navy.mil/nswc/indianhead/codeCA/EMTC/main.aspx>

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