

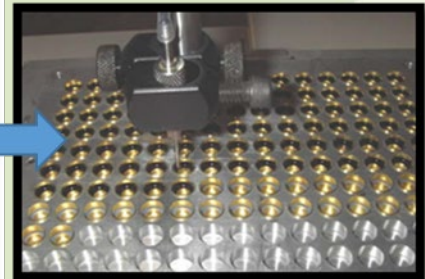
DBX-1 - Green Primary Explosive Demonstration in Detonators to Replace Lead

PROJECT OVERVIEW

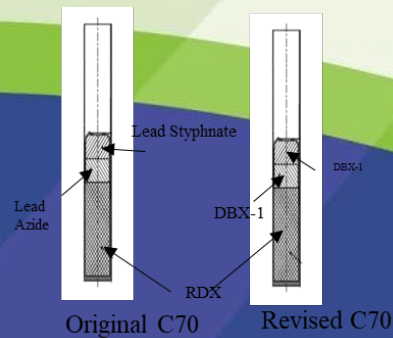
There are thousands of DoD items that use lead azide (LA) and lead styphnate (LS) as primary explosives, these pose health and environmental hazards. Due to increasing environmental regulations and health concerns, LA stockpiles are diminishing. This project objective was to optimize the current coating method and demonstrate coated DBX-1 as a replacement for LA and a LS replacement in detonators such as the C70 used in the M213 Fuze (M67 Hand Grenade). We are collaborating with a manufacturer to load items with DBX-1, replaced lead-based materials and performed full spec performance testing.

BENEFITS

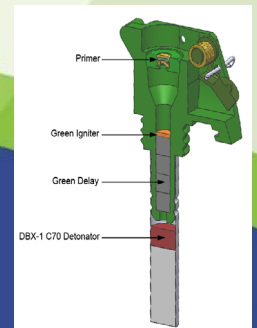
This substitution will benefit all Joint Program Executive Office Armaments & Ammunition (JPEO A&A) items containing lead-based detonators, primers, and initiators. Using DBX-1 will reduce material requirements due to its density and performance output, minimize operator exposure and decrease hazardous waste. Army Public Health Command completed a health risk assessment of DBX-1 (Toxicology Report No. S.0002730-13, October 2013) which was found to be relatively harmless based on the Microtox test. Additionally, DBX-1 is insoluble in water, posing no risk to groundwater.



Current loading method vs. Automated loading method



C70 Detonator Layout



PATH FORWARD

The successful builds and tests conducted by Battelle Inc., with DBX-1 loaded C70 detonators, along with comprehensive arena testing of M67 grenades, increased the confidence to perform full qualification. Developed a full qualification/full spec performance testing plan, blessed by the Army Fuze Board. In summary, based on this effort, full qualification/full spec performance testing of green C70 detonators will be conducted starting late FY24.

DoD Executive Agent

Office of the Assistant Secretary of the Army for Installations, Energy, and Environment

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FOR FURTHER INFORMATION

National Defense Center for Energy and Environment

<http://www.denix.osd.mil/ndcee/>

JPEO PM-CCS

<https://jpeoaa.army.mil/jpeoaa/>

FCDD-ACM-EW, CCDC-AC

<https://www.pica.army.mil/Picatinny/>