

Performance of Co-Layered Energetic Thermoplastic Elastomer-Based Propellant in
Medium Caliber Ammunition

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Current medium caliber ammunition employs toxic and carcinogenic materials that make safe disposal of propellants difficult. In the next 5 years, medium caliber munitions will require 7,700 lb per year of diphenylamine (DPA) and 2,000 lb per year of Barium Nitrate. To address these concerns a promising energetic thermoplastic elastomer (ETPE) based propellant has been developed and is undergoing initial characterization. This propellant does not use stabilizers or ballistic additives and has excellent processing behavior. Characterization testing conducted to date has culminated in live fire testing in two medium caliber gun systems. This paper will present the results of these tests as well as other pertinent data generated during propellant manufacturing and evaluation.