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Front curvature and rate stick data on formulations containing DAAF, TATB, RDX and HMX including diameter and temperature effects ELIZABETH FRANCOIS, LANL WX-07, ERIC V. SANDERS, LANL WX-06, JOHN MORRIS, LANL WX-09 — A test series was conducted on formulations containing TATB and RDX (PBXN-7), TATB and HMX (PBXW-14) and DAAF and HMX where corner turning and detonation propagation data are measured. Corner turning is a function of temperature and can be used to evaluate the completeness of explosive work. In order to show cold temperature performance behavior, this test was developed to compare the front curvature of these materials at a variety of diameters, explosive compositions, and temperature. Shots were fired at ambient temperatures and -55°C. The test apparatus developed for this lends itself to streak imagining across the pellet face, and time of arrival scope data from magnet wire embedded between the pellets. The test set up, fixturing and data analysis will be discussed. The results of the shots showed interesting diameter effects on the detonation velocity of the formulations and gave an excellent comparison of the relative curvatures. Quantitative data in the form of $D_n(\kappa)$ curves are generated from the measured detonation velocity (D_o) and wave profile.

Elizabeth Francois
LANL

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