Abstract Submitted
for the SHOCK11 Meeting of
The American Physical Society

Unreacted Hugoniot and Shock Initiation Measurements in Diaminoazoxyfurazan (DAAF) JOHN MORRIS, KYLE RAMOS, ELIZABETH FRANCOIS, Los Alamos National Laboratory — Gas gun-driven impact experiments have been performed using the embedded electromagnetic particle velocity gauge technique to measure the unreacted Hugoniot and the shock initiation behavior of diaminoazoxyfurazan (DAAF) formulated with 3 weight percent Kel-F 800. Previous sensitivity testing has shown that DAAF possesses a unique and unusual discrepancy between impact and shock sensitivity. The explosive is insensitive to impact under drop weight testing, with a drop weight impact height of greater than 320 cm, yet the shock sensitivity is similar to HMX. The extent difference in impact and shock sensitivity suggests changes in initiation behavior that need to be characterized and quantified. Understanding what physical characteristics lend insensitivity to DAAF could have significant implications for explosives in general and will allow it to be used more effectively (ie where does impact insensitivity transition to HMX-like shock sensitivity). Unreacted Hugoniot and shock initiation results will be presented and discussed.

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Date submitted: 22 Feb 2011 Electronic form version 1.4