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**Shock Initiation Experiments with Ignition and Growth Modeling on Low Density HMX** FRANK GARCIA, KEVIN S. VANDERSALL, CRAIG M. TARVER, Lawrence Livermore National Laboratory — Shock initiation experiments on low density ( $1.24$  and  $1.64$  g/cm<sup>3</sup>) HMX were performed to obtain in-situ pressure gauge data, characterize the run-distance-to-detonation behavior, and provide a basis for Ignition and Growth reactive flow modeling. A 101 mm diameter gas gun was utilized to initiate the explosive charges with manganin piezoresistive pressure gauge packages placed between packed layers ( $1.24$  g/cm<sup>3</sup>) or sample disks pressed to low density ( $1.64$  g/cm<sup>3</sup>). The measured shock sensitivity of the  $1.24$  g/cm<sup>3</sup> HMX was similar to that previously measured by Dick and Sheffield et. al. and the  $1.64$  g/cm<sup>3</sup> HMX was measured to be much less shock sensitive. Ignition and Growth model parameters were derived that yielded good agreement with the experimental data at both initial densities. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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