Abstract Submitted
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Shock Initiation Experiments with Ignition and Growth Modeling on the HMX-Based Explosive LX-14[1] KEVIN S. VANDERSALL, MARTIN R. DEHAVEN, SHAWN L. STRICKLAND, CRAIG M. TARVER, H. KEO SPRINGER, MATT R. COWAN, Lawrence Livermore National Laboratory — Shock initiation experiments on the HMX-based explosive LX-14 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 sample disks pressed to different densities (˜1.57 or ˜1.83 g/cm3 that corresponds to ˜85 or ˜99% of theoretical maximum density (TMD), respectively). The shock sensitivity was found to increase with decreasing density as expected. Ignition and Growth model parameters were derived that yielded reasonable agreement with the experimental data at both initial densities. The shock sensitivity at the tested densities will be compared to prior work published on other HMX-based formulations.

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