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Shock Initiation Experiments with Ignition and Growth Modeling on Low Density Composition B KEVIN S. VANDERSALL, FRANK GARCIA, CRAIG M. TARVER, Lawrence Livermore Natl Lab — Shock initiation experiments on low density ($\sim$1.2 and $\sim$1.5 g/cm^3) Composition B were performed to obtain in-situ pressure gauge data, characterize the run-distance-to-detonation behavior, and provide a basis for Ignition and Growth reactive flow modeling. A 101 mm diameter gas gun was utilized to initiate the explosive charges with manganin piezoresistive pressure gauge packages placed between packed layers ($\sim$1.2 g/cm^3) confined in Teflon rings or sample disks pressed to low density ($\sim$1.5 g/cm^3). 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 as near full density material. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344. This work was funded in part by the Joint DoD-DOE Munitions Program.

Kevin Vandersall
Lawrence Livermore Natl Lab

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