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Measurement and reactive burn modeling of the shock to detonation transition for the HMX based explosive LX-14 J. D. JONES, XIA MA, B. E. CLEMENTS, L. L. GIBSON, R. L. GUSTAVSEN, Los Alamos National Laboratory — Gas-gun driven plate-impact techniques were used to study the shock to detonation transition in LX-14 (95.5 weight % HMX, 4.5 weight % estane binder). The transition was recorded using embedded electromagnetic particle velocity gauges. Initial shock pressures, P, ranged from 2.5 to 8 GPa and the resulting distances to detonation, x_D, were in the range 1.9 to 14 mm. Numerical simulations using the SURF reactive burn scheme coupled with a linear $U_S - u_p$ / Mie-Grueneisen equation of state for the reactant and a JWL equation of state for the products, match the experimental data well. Comparison of simulation with experiment as well as the "best fit" parameter set for the simulations is presented.

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