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Multi-dimensional hydrodynamic simulations aimed at characterizing heavily aluminized RDX JACK J. YOH, BOHOON KIM, MINSUNG KIM, Seoul National University — An accurate and reliable prediction of reactive flow is a challenging task for an energetic material subjected to an external shock impact. The present study aims at simulating the shock induced detonation of heavily aluminized RDX which contains 35% of aluminum. A series of gap tests with the longitudinal simulations involving gap substances are conducted to understand the inherent initiation process that depends on the shock propagation through multi-material domain and the high strain dynamics of nearby confinement materials. A pressure chamber test is used to validate the blast wave calculation of the sample charge, and a full 3-D hydrodynamic simulation is performed to predict fragmentation of an explosively loaded steel casing. The paper provides an elaborate description of how a heavily aluminized RDX is characterized in terms of its thermo-chemical response and multi-material interaction with inert confinement materials.

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