Detonation Shock Dynamics Calibration for Non-Ideal HE: ANFO

MARK SHORT, Los Alamos National Lab, TERRY SALLYER, Los Alamos National Laboratory — The detonation of ammonium nitrate (AN) and fuel-oil (FO) mixtures (ANFO) is significantly influenced by the properties of the AN (porosity, particle size, coating) and fuel-oil stoichiometry. We report on a new series of rate-stick experiments in cardboard confinement that highlight detonation front speed and curvature dependence on AN/FO stoichiometry and AN particle properties. Standard detonation velocity-curvature calibrations to the experimental data will be presented, as well as higher-order time-dependent detonation shock dynamics calibrations.

Mark Short
Los Alamos National Lab

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