

Abstract Submitted  
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**Gas gun experiments and numerical simulations on the HMX-based explosive PBX 9501 in the overdriven 30 to 120 GPa pressure regime** E. R. PITTMAN, University of New Mexico, R. L. GUSTAVSEN, C. R. HAGELBERG, J. H. SCHMIDT, Los Alamos National Laboratory — The focus of this set of experiments is the development of data on the Hugoniot for the overdriven products equation of state (EOS) of PBX 9501 (95 weight % HMX, 5 weight % plastic binder) and to extend data from which current computational EOS models draw. This series of shots was conducted using the two-stage gas-guns at Los Alamos and aimed to gather data in the 30 to 120 GPa pressure regime. Experiments were simulated using FLAG, a Lagrangian multiphysics code, using a one-dimensional setup which employs the Wescott Stewart Davis (WSD) reactive burn model. Prior to this study, data did not extend above 90 GPa, so the new data allowed the model to be re-evaluated. A comparison of the simulations with the experimental data shows that the model fits well below 80 GPa. However, the model did not fall within the error bars of the data for higher pressures. This is an indication that the PBX 9501 overdriven EOS products model could be modified to better match the data.

R. L. Gustavsen  
Los Alamos National Laboratory

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