Ignition and Growth Reactive Flow Modeling of Shock Initiation of PBX 9502 at -55°C and -196°C

STEVEN CHIDESTER, CRAIG TARVER, Lawrence Livermore National Laboratory — Recently Gustavsen et al. [1] and Hollowell et al. [2] published two stage gas gun embedded particle velocity gauge experiments on PBX 9502 (95%TATB, 5% Kel-F800) cooled to -55°C and -196°C, respectively. At -196°C, PBX 9502 was shown to be much less shock sensitive than at -55°C, but it did transition to detonation. Previous Ignition and Growth model parameters for shock initiation of PBX 9502 at -55°C are modified based on the new data, and new parameters for -196°C PBX 9502 are created to accurately simulate the measured particle velocity histories and run distances to detonation versus shock pressures.


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