JONES-WILKENS-LEE (JWL) EQUATION OF STATE WITH AFTERBURNING

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ABSTRACT

The standard Jones-Wilkens-Lee equation-of-state for modeling detonation of high explosives was modified to allow inclusion of the additional energy associated with afterburning of fuel rich (oxygen poor) high explosives. Three options are available for including the additional afterburning energy:

1. Constant energy rate addition
2. Linear energy rate addition
3. Miller Extension

The performance of the afterburning equation of state is demonstrated via comparison with three experimental and numerical examples:

1. LLNL HEAF Tests, Kuhl et al. (1998):
2. NCEL Tests, Keenan and Wager (1992):
3. Moby Dick Test, Miller & Guirguis (1993)