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An Analytical Approach to Obtaining JWL Parameters from Cylinder Tests BEN SUTTON, JAMES FERGUSON, AWE — An analytical method for determining parameters for the JWL equation of state (EoS) from cylinder test data is described. This method is applied to four datasets obtained from two 20.3 mm diameter EDC37 cylinder tests. The calculated parameters and pressure-volume (p-V) curves agree with those produced by hydro-code modelling. The calculated Chapman-Jouguet (CJ) pressure is 38.6 GPa, compared to the model value of 38.3 GPa; the CJ relative volume is 0.729 for both. The analytical pressure-volume curves produced agree with the one used in the model out to the commonly reported expansion of 7 relative volumes, as do the predicted energies generated by integrating under the p-V curve. The calculated and model energies are 8.64 GPa and 8.76 GPa respectively.

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