

Abstract Submitted
for the SHOCK07 Meeting of
The American Physical Society

Isentropic Compression Studies of Energetic Composite Constituents¹ MELVIN BAER, CLINT HALL, MIKE HOBBS, Sandia National Laboratories, RICK GUSTAVSEN, DANIEL HOOKS, STEVE SHEFFIELD, Los Alamos National Laboratory — A series of quasi-isentropic magnetic pulse compression experiments using the Sandia Z accelerator and DICE small pulser have provided new insights in material behavior of the various constituents typically used in energetic composites. In this presentation, we overview a method used to determine appropriate constitutive and EOS property data using the combination of forward and backward procedures with optimization software. Sensitivity analysis is presented to assess the uncertainties of the experimental measurements and their effects in determining material response. These data interrogation techniques were applied at a ramp loading condition up to 50 Kbar over duration of ~ 500 ns in panel configurations containing explosive crystals (HMX and RDX), binders (Estane, Teflon, Kel F and HTPB) and composites (PBX9501, PBS9501, Al/Teflon).

¹Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy under contract DE-AC04-94AL85000.

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Date submitted: 16 Feb 2007

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