3D Simulation Capability for Isentropic Compression Loads[1] S. CHANTRENNE[2], T. AO, J.R. ASAY, T.A. HAILL, H.L. HANSHAW, C.A. HALL, Sandia National Laboratory — For the past 10 years, equation-of-state experiments have been carried out using magnetic pressure to isentropically compress materials. Recently, a compact, fast strip-line pulser was designed with the objective of doing isentropic compression experiments at low cost, with rapid turn around, with good shot-to-shot reproducibility, and with the ability to shape the current profile for the material being tested. In this work, we present the results of 3D simulations of isentropic compression loads that were performed with Sandia National Laboratories' ALEGRA MHD code. In order to understand the pressure magnitude and uniformity, current density distributions were calculated from the capacitors to the load. Free-surface velocity measurements are compared to those obtained from these simulations and show reasonable agreement. Details describing the computational methods used in these simulations will be discussed.

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