

Abstract Submitted
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Measurements of Multi-Megabar Quasi-Isentropes for Several Materials¹ JEAN-PAUL DAVIS, MARCUS D. KNUDSON, MICHAEL P. DES-JARLAIS, Sandia National Laboratories — Quasi-isentropic ramp-wave experiments promise accurate equation-of-state (EOS) data in the solid phase at relatively low temperatures and multimegabar pressures. In this range of pressure, isothermal diamond-anvil techniques have limited accuracy due to reliance on theoretical EOS of calibration standards, thus accurate quasi-isentropic compression data would help immensely in constraining EOS models. Isentropic compression experiments (ICE) using the Z Machine at Sandia as a magnetic drive have recently seen significant improvements in accuracy and pressure range, due to (1) a major refurbishment and upgrade of the accelerator, (2) the development of a stripline target configuration, and (3) new experiment design and data analysis approaches. After a brief discussion of these improvements, new data will be presented on tantalum, beryllium, and aluminum metals as well as lithium fluoride crystal. Comparisons will be made to several independently developed EOS as well as recent quantum molecular dynamics (QMD) results.

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