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Isentropic-Compression Equation-of-State Experiments Using the OMEGA Laser D.E. FRATANDUONO, M.A. BARRIOS, T.R. BOEHLY, D.D. MEYERHOFER, Laboratory for Laser Energetics, U. of Rochester, D.G. HICKS, J.H. EGGERT, R. SMITH, LLNL — Quasi-isentropic compression of materials can improve the understanding of equation of state (EOS) by providing off-Hugoniot measurements. Quasi-isentropic compression was used on the OMEGA Laser System to achieve peak pressures >10 Mbar in diamond and at relatively low temperatures of <1 eV. We report on a technique that uses this compression to study structural and optical properties of materials' high pressures. The reflectivity of aluminum samples is observed to dramatically decrease when compressed to ∼1 Mb. Several explanations for this will be discussed. This work was supported by U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

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