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Measurements of Sound Velocity and Grüneisen Parameter in CH and MgO Shocked to Mbar Pressures C.A. MCCOY, M.C. GREGOR, D.N. POLSIN, T.R. BOEHLY, D.D. MEYERHOFER, Laboratory for Laser Energetics, U. of Rochester, D.E. FRATANDUONO, P.M. CELLIERS, LLNL — We present sound velocity measurements using an unsteady wave analysis to relate acoustic perturbations in a sample to those in a standard with known sound velocity and Grüneisen parameter. The contraction and dilation of perturbations in the shock velocities in each material provide information on the sound velocity. Experiments measured the sound velocity and Grüneisen parameter in shocked CH and MgO (periclase) relative to a quartz standard. Hugoniot measurements were also made for MgO shocked to the fluid state; a modified $U_{\mathrm{S}} - u_{\mathrm{p}}$ relation is presented. The results are compared to *SESAME* and LEOS tables for CH and MgO. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

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