

Abstract Submitted
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Laser Interferometry Measurements in Starphire® Soda-Lime Glass Shocked to 14 GPa AARON GUNDERSON, YOSHIMASA TOYODA, YOGENDRA GUPTA, Washington State University — Symmetric plate impact experiments were conducted on Starphire® samples at peak stresses varying between 4-14 GPa, and laser interferometry was used to monitor the particle velocity histories at the sample-impactor interface. A few hundred ns after impact, the lowest stress experiments exhibited either decreasing particle velocity or fluctuations in particle velocity. The higher stress experiments did not show these features and exhibited a constant particle velocity throughout. Sample compression causes a change in the optical path length, resulting in the observed particle velocity to be offset from the actual particle velocity at the sample-impactor interface. The actual particle velocities were known independently from the projectile velocity measurements, due to the symmetric nature of the impact in the present work. Observed and actual particle velocities were compared to obtain velocity corrections for the range of compressions examined. The present results were compared to published velocity correction data for Starphire®. While the present data agree with the published data at the lowest stresses, the two sets of results do not agree at higher stresses. Potential reasons for this disagreement are presented. Work supported by the DOE/NNSA.

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