

Abstract Submitted  
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**Equation of State and Densification of Borosilicate Glass under High Pressure** KATHRYN HAM, YOGESH VOHRA, University of Alabama at Birmingham, YOSHIO KONO, HPCAT, Geophysical Laboratory, Carnegie Institution of Washington, PARIMAL PATEL, Ceramics and Transparent Materials Branch, U.S. Army Research Laboratory — A reprocessed sample of borosilicate glass has been studied by X-ray radiography and multi-angle energy-dispersive X-ray diffraction to 12.2 GPa using a Paris-Edinburgh (PE) press at Beamline 16BM-B, HPCAT of the Advanced Photon Source. Gold foil pressure markers were used to obtain the sample pressure by X-ray diffraction, while X-ray radiography provided a direct measure of sample volume. The X-ray radiography method for volume measurements at high pressures was validated for a known sample of pure  $\alpha$ -Iron. The experimentally measured equation of state of reprocessed borosilicate glass was fitted to a third-order Birch-Murnaghan equation. The bulk modulus of 28.81 GPa obtained from the measured equation of state is in good agreement with the 30.4 GPa value derived from the measured elastic constants. The flotation density of sample decompressed from 12.2 GPa is 2.755 gm/cc and shows an increase in density of 24% as compared to the starting sample.

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