Abstract Submitted
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Low-pressure overdriven experiments on PBX 9502 MARK BYERS, BRIAN JENSEN, Los Alamos National Laboratory — Symmetric impact experiments were performed on PBX 9502 to obtain Hugoniot data in the low-pressure, overdriven regime. An explosive plane wave lens (P300 with comp-B booster) was used to launch an aluminum flyer plate (4 to 4.5 km/s) into an aluminum target backed by the PBX 9502 samples and a LiF window. Photonic Doppler velocimetry (PDV) and VISAR were used to obtain the shock transit time through the PBX 9502 samples and wave profile data at the PBX 9502/LiF interface. Past experimental result in the overdriven regime, utilizing a rotating mirror streak camera, revealed a well-defined high-pressure Hugoniot. In contrast, the low-pressure (overdriven) data exhibited significant scatter likely due to non-steady wave effects associated with the thin PBX 9502 samples (3-5 mm) used in the experiments. The objective of the current work was to obtain Hugoniot data in the low-pressure, overdriven regime for PBX 9502 using recently developed diagnostics along with thicker samples (5-10mm) to decrease the uncertainty and scatter in the Hugoniot data. Further results and implications are presented.

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