Abstract Submitted
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Dynamic Properties of Dragonshield BC^{TM}, Polyurea 650, and Polyurea 250/1000 LAUREN EDGERTON, SUSAN BARTYCZAK, WILLIS MOCK, Naval Surface Warfare Center Dahlgren Division, JEFFRY FEDDERLY, EDWARD BALIZER, Naval Surface Warfare Center Carderock Division — A 40 mm bore gas gun was used to investigate the shock response of two viscoelastic polymer materials: Dragonshield BC$^{\mathrm{TM}}$, Versathane P650, and a blend of Versathane P250 and P1000. Sabots carrying Al or Cu metal disks were launched into target assemblies containing the polymer material. The target consisted of a thin metal disk on the impact side, a 6.5-mm-thick polymer disk, and a thick metal backup disk. 50 ohm manganin gauges were epoxied between the metal/polymer and polymer/metal interfaces to measure the interface stresses and shock transit time. Measured longitudinal stresses ranged from 2.9 to 34.8 kbar. The interface particle velocity, shock velocity, mean stress, and uniaxial strain were calculated for each experiment. The experimental technique, analysis methodology, and results will be presented.

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