Abstract Submitted
for the SHOCK13 Meeting of
The American Physical Society

Elastic Precursor Decay in S-200F Beryllium CHRIS D. ADAMS, WILLIAM W. ANDERSON, WILLIAM R. BLUMENTHAL, GEORGE (RUSTY) T. GRAY, III, Los Alamos National Laboratory — We have performed a number of plate impact experiments on vacuum hot-pressed (VHP) S-200F Be at shock stresses between 2.1 and 23 GPa to gain insight into the dynamic strength and damage behavior of this technologically important material.[1] In this discussion we will focus on our observations of dynamic strength represented by the Hugoniot Elastic Limit (HEL) determined from the amplitude of the elastic precursor wave observed in VISAR wave profiles collected at the rear surface of the target for experiments conducted in transmission geometry. We observe monotonic decay in precursor amplitude with run distance for sample thicknesses between 4 and 8 mm. We will discuss the observed precursor decay with respect to the relative roles of twinning and dislocation mediated slip in the overall material mechanical response. We will make comparisons with similar data obtained from experiments conducted on roll-textured plate where the contribution of twinning to initial deformation is expected to be suppressed.

[1]C. D. Adams, et. al., "Shock Compression of Condensed Matter – 2009, AIP Conference Proceedings 1195, **1**, 509-512, (2009).

Chris D. Adams
Los Alamos National Laboratory

Date submitted: 22 Feb 2013 Electronic form version 1.4