Abstract Submitted for the SHOCK11 Meeting of The American Physical Society

Characterization of RHA and Titanium 6-4 Alloys GARRY AB-FALTER, University of Dayton Research Institute, Dayton, OH 45469-0123, NACH-HATTER BRAR, University of Dayton Research Institute, Dayton, OH 45469-0116 — Rolled Homogeneous Armor (RHA) steel and Titanium 6-4 Alloy are characterized at quasi-static and high strain rates to ~1700/s and high temperatures to 1/2Tm (melting temp). Room temperature stress-strain data show that the strain rate sensitivity of titanium is twice that of RHA. Temperature softening of the two alloys is investigated by performing tests at various temperatures to 1/2 Tm. Flow stress of RHA at a strain rate of ~1000/s decreases from about 1500 MPa at 21°C to 750 MPa at 1/2 Tm. In the case of Titanium flow stress decreases from about 1450 MPa to 600 MPa at 1/2 Tm. Two alloys are also characterized in the torsion mode to investigate their shear response. Shear stress – strain data are analyzed to correlate to the tension data for both the alloys.

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Date submitted: 23 Feb 2011

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