

Abstract Submitted
for the SHOCK07 Meeting of
The American Physical Society

Effect of Aluminum Particle Size on the High Strain Properties of Pressed Aluminized Explosives CHAD RUMCHIK, JENNIFER JORDAN, Air Force Research Laboratory — High strain rate mechanical properties of explosives are important in design as these materials see extreme loading environments. Previous studies have shown that decreasing the particle size of the explosive crystals in a PBX can increase the strength. In this study, pressed explosives (64% explosive, 30% aluminum, and 6% HTPB based binder) were prepared with varying aluminum particle size from 50 nm to 30+ μm in order to investigate the effect of aluminum particle size and morphology on the compressive stress-strain behavior of the material. The paper will present the experimental results of this study as well as an investigation into potential constitutive models for these materials.

Jennifer Jordan
Air Force Research Laboratory

Date submitted: 12 Feb 2007

Electronic form version 1.4