

Abstract Submitted  
for the SHOCK17 Meeting of  
The American Physical Society

**Particle Size Effects on CL-20 Initiation and Detonation** COLE VALANCIUS, JOE BAINBRIDGE, CODY LOVE, DUANE RICHARDSON, Sandia Natl Labs — Particle size or specific surface area effects on explosives has been of interest to the explosives community for both application and modeling of initiation and detonation. Different particles sizes of CL-20 were used in detonator experiments to determine the effects of particle size on initiation, run-up to steady state detonation, and steady state detonation. Historical tests have demonstrated a direct relationship between particle size and initiation. However, historical tests inadvertently employed density gradients, making it difficult to discern the effects of particle size from the effects of density. Density gradients were removed from these tests using a larger diameter, shorter charge column, allowing for similar loading across different particle sizes. Without the density gradient, the effects of particle size on initiation and detonation are easier to determine. The results of which contrast with historical results, showing particle size does not directly affect initiation threshold.

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Date submitted: 17 Feb 2017

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