

Abstract Submitted
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Extended run distance measurements of shock initiation in PBX 9502¹ RICK GUSTAVSEN, STEVE SHEFFIELD, RICK ALCON, Los Alamos National Laboratory — We have completed a series shock initiation experiments on two lots of PBX 9502 (95 weight % TATB, 5 weight % Kel-F 800 binder). One PBX 9502 lot contained few fine particles (10 weight % < 20 microns) while the second lot contained many fines (38 weight % < 20 microns). Large, 71 mm diameter PBX 9502 samples were used and input pressures were 7.5 – 8.5 GPa resulting in run distances to detonation of 25 – 35 mm. These results extend previous work [J. Appl. Phys. 99, 114907 (2006)] in which we used 43 mm diameter samples, input pressures > 10.5 GPa, and measured run distances < 15 mm. Buildup to detonation was measured using embedded magnetic particle velocity gauges. An unusual feature of the work was the use of metallic impactors (316 stainless steel) in combination with magnetic gauges. It has previously been assumed that conducting impactors would badly perturb the magnetic gauge measurements; however, we observed no ill effects other than a nearly constant baseline shift of $\approx 10\%$. Results include reaction rates at the impact surface and distance to detonation vs. initial pressure. No lot to lot differences in initiation behavior were observed.

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