

Abstract Submitted
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The Effects of PBX 9502 Ratchet Growth on Detonation Failure as Determined via the LANL Failure Cone Test¹ TERRY SALYER, Los Alamos National Laboratory — The detonation failure cone test (developed at LANL) functions as a sensitive experimental technique capable of discriminating small detonation performance differences due to material microstructural variations. Detonation performance with respect to failure is visibly amplified in the edge velocity trajectory measured along a conically shaped explosive. The failure cone test has been fielded to examine the possible effects of PBX 9502 ratchet growth (material expansion due to thermal cycling) on detonation failure. Performance comparisons are made between charges of equal density, but with different microstructures due to charge preparation technique. Material porosity complexities affect hot spot distribution and thus the reaction zone characteristics of PBX 9502. The results indicate that ratchet growth does indeed affect detonation performance with respect to failure.

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