

Abstract Submitted  
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**The Effect of Charge Reactive Metal Cases on Air Blast** FAN ZHANG, DRDC Suffield, Canada, WILLIAM WILSON, DTRA, Fort Belvoir, VA — Experiments were conducted in a 23 m<sup>3</sup> closed chamber using explosive encased in a cylindrical reactive metal case to study the effect on air blast from the case fragments. Parameters varied included explosive material, case material, case/explosive mass ratio and charge internal diameter, which ranged from 7.62 to 12.7 cm. The pressure histories measured on the chamber wall showed a double-shock front structure with an accelerating precursor shock followed by the primary shock, suggesting the early-time reaction of small case fragments. During the early reflections on the chamber wall, the pressure rise achieves a factor of 1.6 versus the steel-cased and a factor of 1.2-1.4 versus the bare charges, indicating combustion of a large amount of small case particles generated by secondary fragmentation. The analysis of explosion pressures and recovered fragments and solid products showed that the burnt case mass increases with detonation pressure and case/explosion mass ratio over a test range from 0.29 to 1.75 in a quadratic function. The influences of charge diameter and various reactive metal cases on the burnt case mass are further investigated.

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