

Abstract Submitted
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A Common Initiation Criterion for CL-20 EBW Detonators COLE VALANCIUS, CHRISTOPHER GARASI, PATRICK O'MALLEY, Sandia National Laboratories — In an effort to better understand the initiation mechanisms of hexanitrohexaazaisowurtzitane (CL-20) based Exploding Bridgewire (EBW) detonators, a series of studies were performed comparing electrical input parameters and detonator performance. Traditional methods of analysis, such as burst current and action, do not allow performance to be compared across multiple firesets. A new metric, electrical burst energy density (E_ρ), allows an explosive train to be characterized across all possible electrical configurations (different firesets, different sized gold bridges, different cables and cable lengths); by testing one electrical configuration, performance across all others is understood. This discovery has implications for design and surveillance, and for the first time, presents a link between modeling of electrical circuits (such as in ALEGRA) and explosive performance.

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