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Launch Safety of RDX-based Aluminized Explosive

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Abstract: The launch safety of RDX-based aluminized explosive(R-Al explosive) was studied by 400 kg large drop hammer experiment and one-stage light-gas gun experiment. The stress-time curves of the explosive charge were obtained under the two different experimental conditions. Comparison of the launch safety of R-Al explosive and casting Comp. B was carried out. Results show that the ignition of R-Al explosive does not occur under the conditions of loading stress of 1.47 GPa and loading time of 3.04 ms for large drop hammer and loading stress of 660 MPa and loading time of 41 μs for one-stage light-gas gun. The ignition of casting Comp. B does occur under the conditions of loading stress of 840 MPa, loading time of 2.10 ms for large drop hammer and loading stress of 394 MPa, loading time of 40 μs for one-stage light-gas gun, revealing that the launch safety of R-Al explosive is better than that of casting Comp. B.

Key words: explosion mechanics; launch safety; large drop hammer experiment; one-stage light-gas gun experiment; aluminized explosive
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《含能材料》高效毁伤弹药专栏征稿

高效毁伤弹药以"利用最小化成本获得最大化效果"为目标，对含能材料的性能和能量提出了更高的要求。为进一步促进高效毁伤弹药及其技术的研究，本刊将于2015年增设高效毁伤弹药专栏，内容涉及(1)传统含能材料的优化和改进以及先进含能材料的开发和应用，包括：传统含能材料合成、制造、处理和应用的新方法与新技术，新的CHON含能材料的开发和应用，金属化炸药，非传统概念炸药(如燃料空气炸药、温压炸药)，高能量密度材料；(2)含能材料能量的控制输出研究，包括：能量输出增强(如组合装药)，能量输出聚焦/定向，能量输出模式可控(如多模装药)，能量输出范围可控(如低附带毁伤炸药)。欢迎广大学者投稿，来稿时请选择对应的专栏。

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