

Response to High Voltage Electrostatic Discharge for Exploding Bridgewire Detonators

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Abstract: The response of exploding bridgewire detonators with two different (pin-pin and pin-shell) discharge types to high voltage electrostatic discharge (ESD) was studied using a high voltage ESD test system at the circuit parameters of 250 kV, 1000 pF, 1 Ω. Results show that melting, fracture or explosion (without ignition) of bridgewire detonators can be observed when ESD was applied to pin-pin discharge. The 50% broken voltage of bridge wire is 56.33 kV. The typical response of detonators to ESD is electrode plug breaking away from shell when ESD applied to pin-shell. The response characteristic of detonator to high voltage ESD is found to be related with the ESD energy distribution, the structure and the ignition mechanism of detonator.

Key words: electrostatic discharge (ESD); exploding bridgewire detonator; response characteristic

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《含能材料》高品质炸药晶体研究专栏征稿

高品质炸药晶体的出现为钝感弹药的研究与应用开辟了一条重要途径,高品质炸药晶体因而也成为目前国内外含能材料研究领域的热点之一。为促进高品质炸药晶体的研究和应用,《含能材料》将于2015年开设高品质炸药晶体研究专栏,专题报道高品质炸药晶体的制备、表征、性能、应用等领域的最新研究成果,促进学者间的交流。欢迎相关研究学者投稿。来稿建议为英文。来稿时请选择对应的专栏。

更正

本刊2015年第3期205页《火工品集成技术的发展机遇与途径》中“3.集成技术是非线性火工品高可靠性、小型化的必经技术途径”一节的全文应为:

非线性火工品由于作用机理的特殊性,其安全性可靠性得到了本质提高。但是,以电-爆换能机理和光-爆换能机理为主的爆炸箔火工品、激光火工品等典型非线性火工品的可靠性与发火源、发火能量传递损耗等因素的关系十分密切。通过系统集成能达到降低发火能量、缩小系统体积、减小系统成本、提高系统可靠性的目的。

特此更正。

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