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Experimental study on the Shock Wave Sensitivity Response of Gun Propellant

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Abstract: The gun propellant shock wave sensitivity was investigated by the gap test, including single-base, double-base, triple-base and azide nitramine (DA) propellant with shape of globe, 6/7 and 17/19. The gun shock wave response of propellant was studied. The effects of gun propellant shape the shock wave sensitivity was investigated. Results indicate that the more energy ingredients (RDX, NG, DA), the higher the shock wave sensitivity of gun propellant is and the different kinds of energy ingredients affect the shock wave sensitivity differently. The bigger the gun propellant shape, the less the sample shock wave sensitivity is. On the base of these experiments, the concept of propellant ingredients shock wave sensitivity quantification count is putted forward, that can be used to study propellant shock wave sensitivity deep.

Key words: explosion mechanics; hazard classification; the gap test; shock wave sensitivity; gun propellant; mechanism

CLC number: TJ55; O38

Document code: A

DOI: 10.3969/j.issn.1006-9941.2011.06.020



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该手册已由国防工业出版社出版,书号 978-7-118-07785-8,全书 447 页,主编田德余、赵凤起、刘剑洪。