Sensitized Performances of Micropore Ball Propellants

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Abstract: Micropore ball propellants were treated by sensitizing agents to improve their flame spread. The effects of variety and content of sensitizing agents on the thermal decomposition and the flame spread speed of micropore ball propellants were studied through dipping process. Results show that peak temperatures of thermal decomposition of the samples decrease obviously with different sensitizing agents. Sensitizing agent A has more effect on peak temperatures, and peak temperatures decrease from 203.1 ℃ to 199.5 ℃ as the content is 5%. The flame spread speed increases markedly with increasing of the content. The sensitized properties of additive agent C is more notable in the sensitizing agents. The flame spread speed increases 3 times as the content of sensitizing agents C is 5%. The increasing extent of flame spread speed of single base sample is higher than that of double base sample with the sensitizing agent A. The impact sensitivity does not change distinctly, but the friction sensitivity increases obviously when sensitizing agent A is introduced. The impact sensitivity increases not more than 10% when the content is less than 16%. The friction sensitivity increases from 58% to 98% as the content is less than 16%. The method for improving flame spread performance by adding sensitizing agent is effective. The content of sensitizing agent should be controlled to avoid the negative effect.

Key words: combustion chemistry; micropore ball propellant; flame spread speed; sensitizing
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特别策划：高品质 HMX 与 RDX 专栏

高品质 HMX 与 RDX 的制备及相关研究，为研制新型低感(钝感)高能炸药、弹药、推进剂提供了一条有效的技术途径。为促进高品质 HMX 与 RDX 的研究，本刊于 2010 年 10 月第 5 期特别推出专栏——高品质 HMX 与 RDX。敬请关注，欢迎赐稿。

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