

Type of Ferrocenes on Sensitivities of Ultra-fine AP and Ferrocene Mixture

ZHANG Wei¹, YANG Jun², YU Yan², BAO Tong¹, LIU Xian-wei¹

(1. Institute of Aerospace and Materials Engineering, National University of Defense Technology, Changsha 410073, China; 2. Shanghai Institute of Organic Chemistry, Chinese Academy of Science, Shanghai 200032, China)

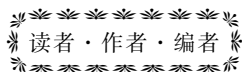
Abstract: Impact sensitivity, friction sensitivity and thermal decomposition tests were applied to study the influence of different ferrocene derivatives on the sensitivities of ultra-fine AP/ferrocene mixtures. Experimental results showed that the ferrocene derivatives in this paper increase the impact and friction sensitivities of the ultra-fine AP/ferrocene mixtures. The impact sensitivities of the ultra-fine AP/ferrocene mixtures are not related to the Fe contents of ferrocene catalyst. However, the friction sensitivities of the ultra-fine AP/ferrocene mixtures are positively related to the Fe content of ferrocene catalyst. Some kinds of ferrocene catalysts, such as, SH-F-1, SH-F-2, SH-F-3, GFP and SH-F-5, present a new exothermic peak in DSC curve of ultra-fine AP/ferrocene mixture, show the greater thermal sensitivities.

Key words: military chemistry and pyrotechnics; ultra-fine ammonium perchlorate; ferrocene derivative; impact sensitivity; friction sensitivity; thermal decomposition

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订阅

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