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## Effects of DNTF Contents on Dynamic Mechanical Properties of Modified Double-base Propellant

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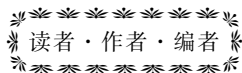
**Abstract:** The effects of 3,4-dinitrofurazanfuroxan (DNTF) contents on dynamic mechanical properties of modified double-base propellants (DNTF-CMDB, DF) were studied by dynamic mechanical analyzer (DMA). The characteristic values of dynamic mechanical properties at multi-frequency for DF propellants were obtained. Results show that two  $\beta$ -relaxations, besides a  $\alpha$ -relaxation, appear on DMA curves of DF propellants, and  $\beta_1$ -relaxation is due to the effect of DNTF. It is shown that the DNTF content can obviously affect the dynamic mechanical properties of DF propellants. The correlations between the  $\tan\delta$  peak temperature  $T_\alpha$  in the  $\alpha$ -relaxation, the free volume expansion coefficients  $\alpha_f$  of  $\alpha$ -relaxation and  $\beta$ -relaxation and the sum of ratios NG/NC and DNTF/NC were obtained. The DF propellants with 20% DNTF have optimal mechanical properties at high and low temperatures.

**Key words:** physical chemistry; CMDB propellant; 3,4-dinitrofurazanfuroxan (DNTF); dynamic mechanical property; dynamic mechanical analyzer (DMA)

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## 2010 年含能材料与钝感弹药技术学术研讨会征文通知

为进一步推动我国含能材料和钝感弹药研究领域的创新与发展,促进科技合作与应用,由中国工程物理研究院化工材料研究所、北京理工大学爆炸科学与技术国家重点实验室和中国兵工学会爆炸与安全技术专业委员会联合主办,中国工程物理研究院化工材料研究所承办的"2010 年含能材料与钝感弹药技术学术研讨会"将于 2010 年 7 月(或 8 月)召开。欢迎从事含能材料及钝感弹药研究的广大工作者积极投稿。有关事项通知如下:

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### 三、截稿日期及提交方法

1. 截稿日期:2010 年 5 月 31 日。
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