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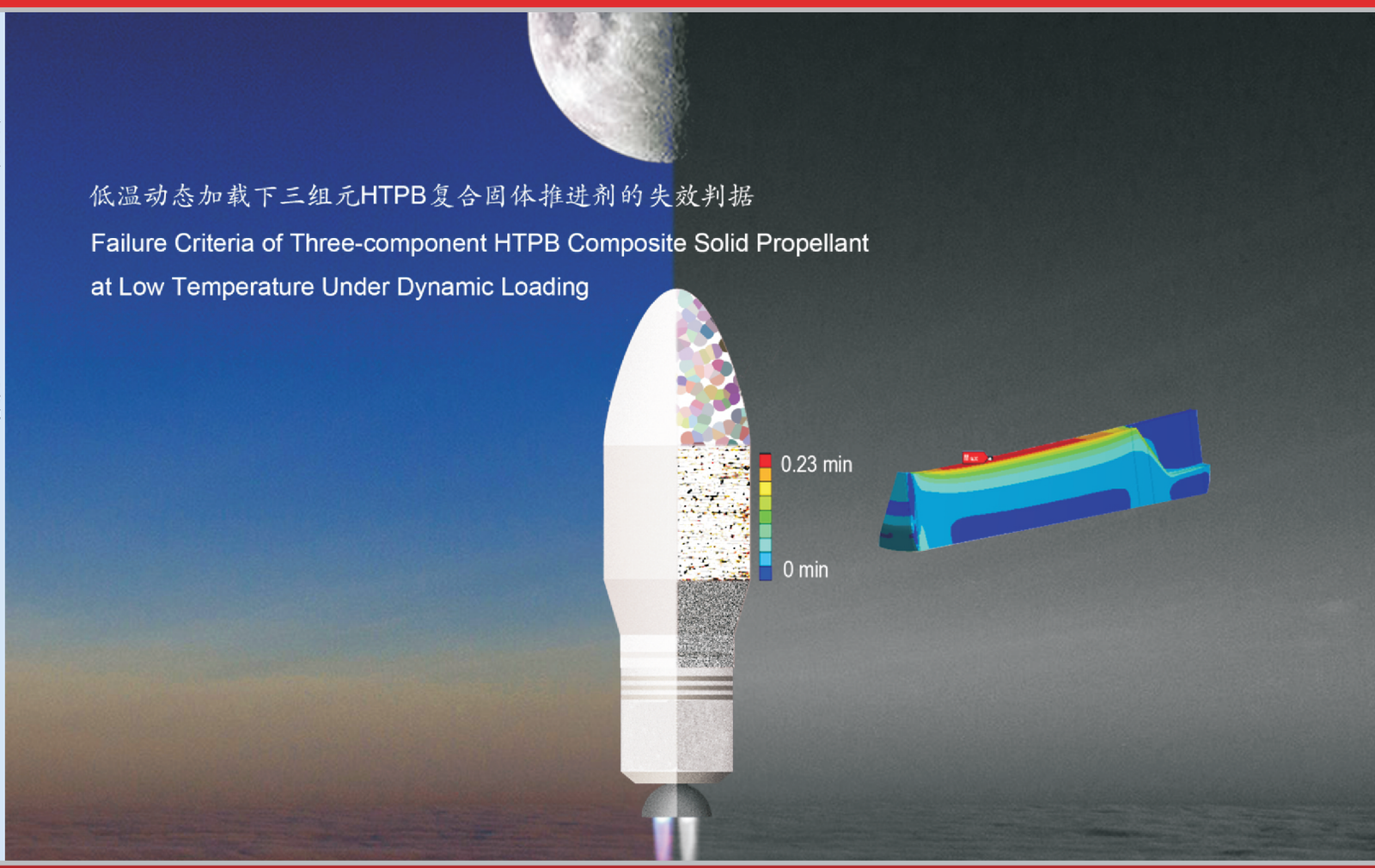


推进剂性能及应用专辑

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# 目 次

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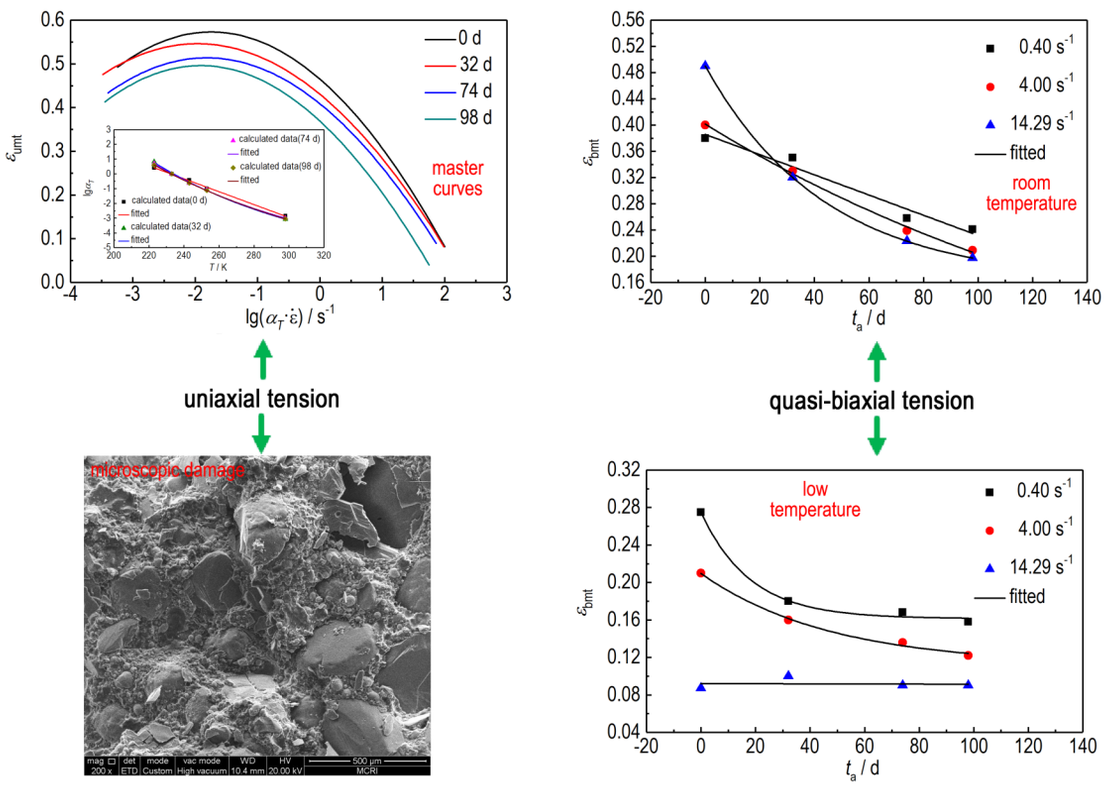
CONTENTS Vol. 27, No. 4, 25 April, 2019

**Failure Criteria of Three-component HTPB Composite Solid Propellant at Low Temperature Under Dynamic Loading**

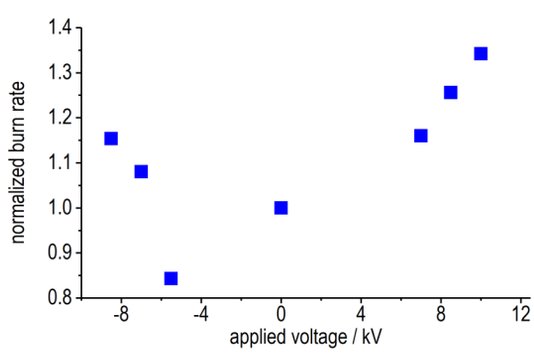



QIANG Hong-fu, WANG Zhe-jun, WANG Guang, GENG Biao

***Chinese Journal of Energetic Materials*,2019,27(4):274−281**

Failure criterion of three component HTPB composite solid propellants at low temperature under dynamic loading was proposed.

**Effect of High Voltage Electric Fields on the Combustion Characteristics of PMMA**

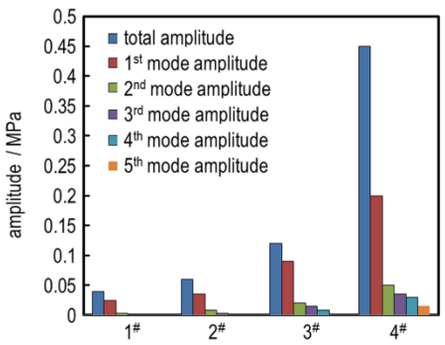


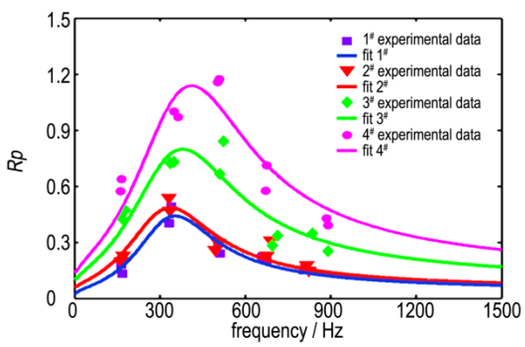

YANG Xiao-long, WEI Zhi-jun, ZHANG Ze-lin, ZHANG Jing-jia, WANG Jia-xing

***Chinese Journal of Energetic Materials*,2019,27(4):282−289**

PMMA was used as the solid fuel for the study of electronically controlled combustion under various electric fields.

**Experiments on the Characteristic of the Nonlinear Combustion Response Functions of Solid Propellants**



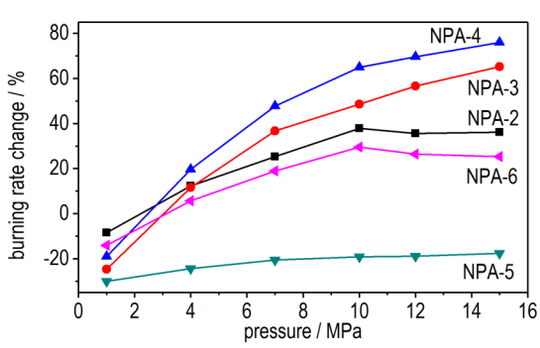




A new method for measurement of the nonlinear pressure coupling response function of solid propellants was established. The nonlinear pressure coupling response functions of three formulations of aluminum propellants were obtained. The characteristics of the nonlinear pressure coupling response of propellants were also analyzed in detail.

JIN Bing-ning, LIU Pei-jin, WEI Shao-juan

***Chinese Journal of Energetic Materials*,2019,27(4):290−296**

**Effect of ADN/GUDN Dual Oxidizers on the Combustion Features of Nitrate Ester Plasticized Polyether Solid Propellants**

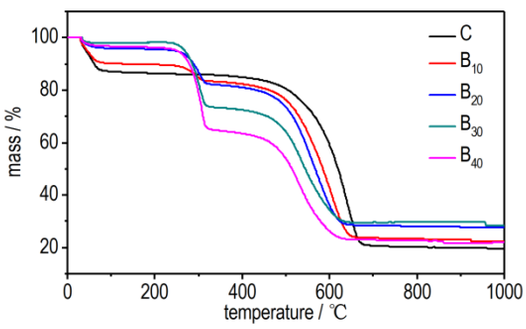


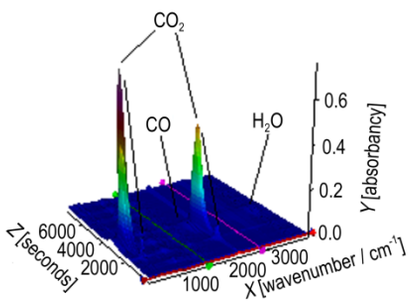

Several laboratory scale research on nitrate ester plasticized polyether (NEPE) solid propellants with and without ammonium dinitramide (ADN) and N-guanylurea-dinitramide (GUDN), featured with the same nominal composition, were prepared and evaluated. The combustion properties (strand burn rate and flame photos) and thermogravimetry (TG) analysis of propellants with ADN and GUDN were determined.

LI Jun-qiang, PANG Wei-qiang, WANG Ke, XIAO Li-qun, XU Hui-xiang, FAN Xue-zhong, ZHANG Chong-min

***Chinese Journal of Energetic Materials*,2019,27(4):297−303**

**TG-FTIR Study on Waste Propellants for Enhanced Combustion of Anthracite**

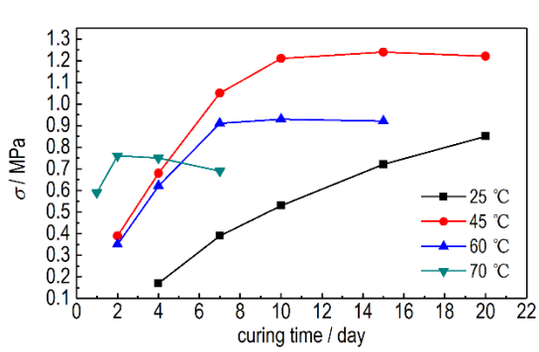



The combustion characteristics of propellant-anthracite blends with different proportionshave been investigated on the basis of TG-DSC-FTIR technique. The study aimed to reuse waste propellants to enhance the combustion of anthracite.

WEI Xiao, LIU Jian-zhong, ZHOU Yu-nan, YUAN Ji-fei, ZOU De-rong
*Chinese Journal of Energetic Materials*,2019,27(4):304-310

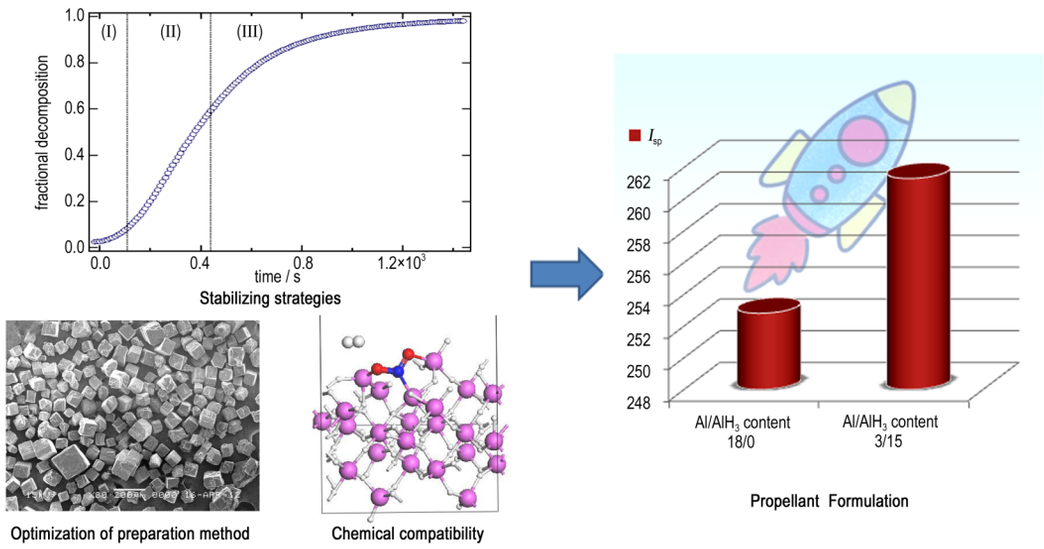
**Effect of the Temperature on the Curing Process of Interstitial-casted XLDB Propellant**




The cross link modified double base (XLDB) propellants were prepared by interstitial-casting process. The effect of the temperature on the curing quality was studied. By observation of the micro-structure changes of the propellants at different time, the curing mechanisms of XLDB propellants were analyzed and the reasons for the effect of temperature on curing of interstitial-casting XLDB propellant were clarified.

LI Xiao-jiang, REN Zhi, LIU Meng, LI Jun-qiang, WU Xiong-gang
*Chinese Journal of Energetic Materials*,2019,27(4):311-316

**Recent Progresses on Synthesis and Evaluation of $AlH_3$**




PANG Ai-min, ZHU Zhao-yang, XU Xing-xing

*Chinese Journal of Energetic Materials*,2019,27(4):317−325

The recent progress on synthesis and evaluation of $AlH_3$ has been summarized. The perspectives and challenges are discussed with details.

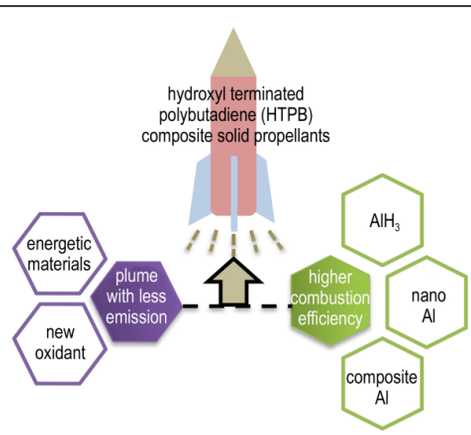
**5-Nitro-1,2,4-triazole-3-one:A Review of Recent Advances**

Sabrina Hanafi, Djalal Trache, Slimane Abdous, Zineddine Bensalem, Abderrahmane Mezroua

*Chinese Journal of Energetic Materials*,2019,27(4):326−347

In this review, various strategies were summarized involved in the synthesis of NTO as well as the existing approaches to tailor its particle morphology and sizes. The most prominent properties of NTO were concisely discussed. In addition, this overview reports on some newer forms of NTO including derivatives and co-crystals available in the literature, which can enhance the NTO features and extend its applications.

**Recent Advances on Applications of New Energetic Ingredients in HTPB Composite Solid Propellants**




WU Shi-xi, ZHANG Tian-fu, ZHOU Chong-yang, LI Xiao-ping, HU Qi-wei

*Chinese Journal of Energetic Materials*,2019,27(4):348−355

This review summarizes several typical new energetic materials (chlorine free oxidants) and novel Al-based composites materials that have been introduced to traditional hydroxyl terminated polybutadiene(HTPB) composite solid propellants.