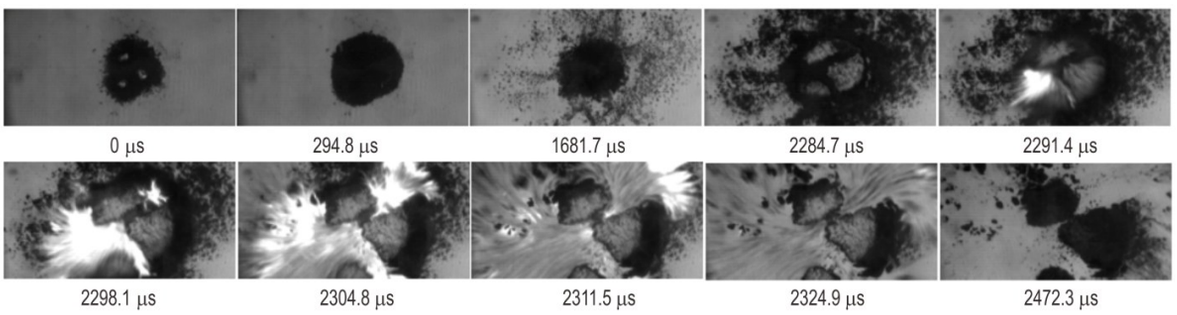
Effect of Sugar Particles on Non-Shock Ignition of Two Kinds of Single Compounds HMX and RDX

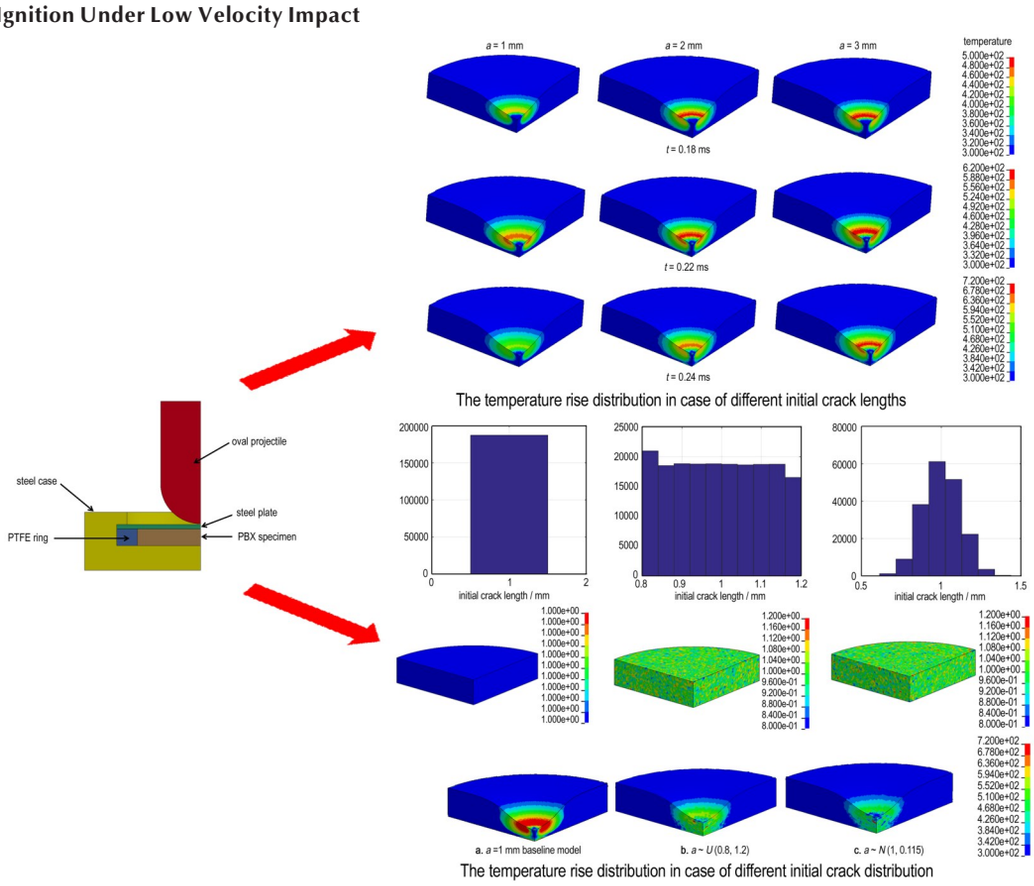


ZHANG Zhao, WU Yan-qing

Chinese Journal of Energetic Materials **(*Hanneng Cailiao*), 2019,27(10):805-811**

Low-speed impact experiments of the HMX and RDX single compound with sugar were carried out, and the effect of sugar particles on the ignition mechanism of HMX and RDX single compound was studied.

Numerical Simulation on the Influence of the Initial Crack on Polymer Bonded Explosive Ignition Under Low Velocity Impact

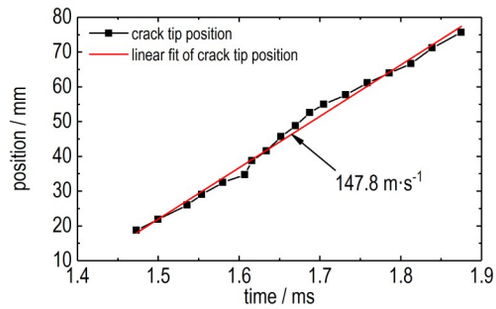


LIU Rui, HAN Yong, DAI Xiao-gan, LI Ming, WANG Jun

Chinese Journal of Energetic Materials **(*Hanneng Cailiao*), 2019,27(10):812-818**

The influence of the initial crack on the ignition during the Steven test was analyzed by means of Visco-SCRAM model and hotspot formation model. Two critical parameters, the initial crack length and the type of the distribution of the initial crack, were discussed, in order to understand how to influence the friction process and further form the hotspot.

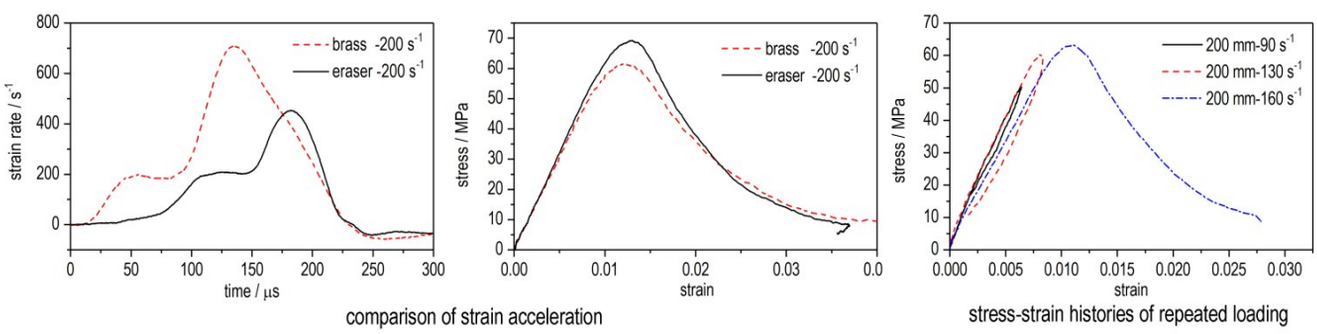
Coupling Properties of Crack Penetration Driven by Explosive Burning Products



SHANG Hai-lin, MA Xiao, CHENG Fu, LI Tao, FU Hua
Chinese Journal of Energetic Materials (***Hanneng Cailiao***), **2019,27(10):819-823**

Penetration of cracks in a HMX-based PBX (with a content of 95% for HMX) under thermal initiation at the preformed gap was recorded by the high-speed camera.

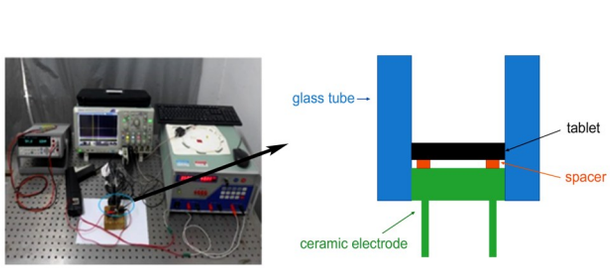
Investigation into the Influences of SHPB Loading Ways on the Mechanical Response of PBX

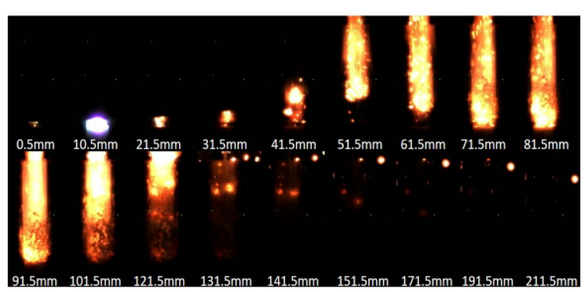


The influences of different loading ways of Split Hopkinson Pressure Bar (SHPB) tests on the damage evolution and mechanical response of PBX have been discussed thoroughly, including the comparisons of different strain accelerations, the different loading widths, and repeated loadings by use of single-pulse loading. Besides, the micro-observation of recovered specimen after dynamic uniaxial compression was performed to learn about the damage evolution of PBX.

LI Jun-ling, WANG Shuo, FU Hua, TAN Duo-wang, LU Fang-yun
Chinese Journal of Energetic Materials (***Hanneng Cailiao***), **2019,27(10):824-829**

Fabrication and Characterization of a Ni-Cr@Al/CuO Insensitive Energetic Element

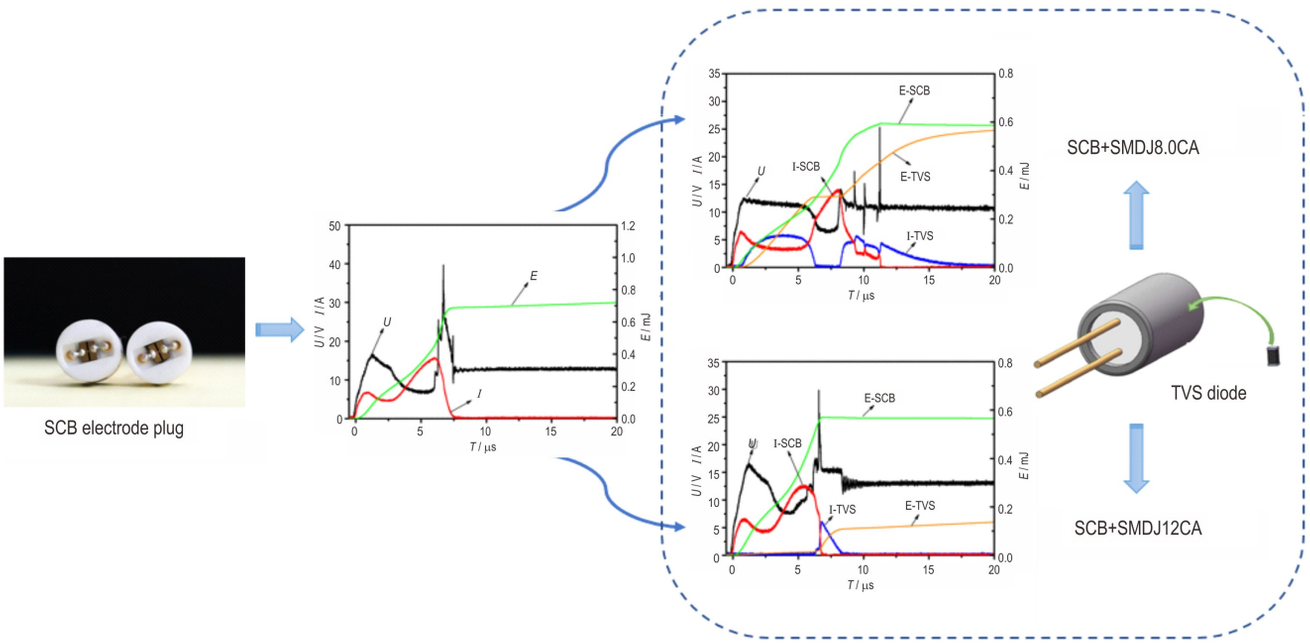




A Ni-Cr@Al/CuO insensitive energetic element was fabricated by combining Al/CuO energetic thin film with Ni-Cr thin film igniter. The safety of 1A1W5min, its electric ignition sensitivity and ignition capability were tested. Ni-Cr@Al/CuO insensitive energetic element can ignite B/KNO_3 at a gap of 1 mm.

YANG Teng-long, SHEN Yun, DAI Ji, ZHENG Guo-qiang, WANG Cheng-ai, YE Ying-hua, SHEN Rui-qi
Chinese Journal of Energetic Materials (***Hanneng Cailiao***), **2019,27(10):830-836**

Simulation of the Influence of Transient Voltage Suppression Diode on the Electro-explosive Performance of Semiconductor Bridge Initiator

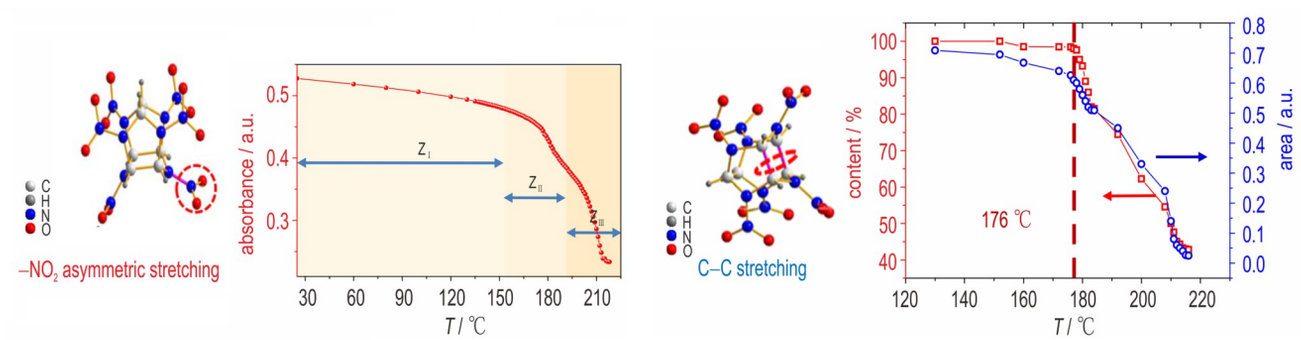


WANG Jun, LI Yong, LU Bing, ZHOU Bin, CHEN Hou-he, HUANG Yi-bin

Chinese Journal of Energetic Materials **(*Hanneng Cailiao*), 2019,27(10):837-844**

The circuit simulation software could help the anti-electrostatics design of the semiconductor bridge initiator. By using the PSpice circuit simulation software, the capacitor discharge unit device and SCB initiator model was established. Meanwhile, the influence of the TVS diode on the electro-explosive performance of SCB initiator was simulated.

Temperature Response Law of the Internal and External Groups of CL-20 Molecule Skeleton by *In-situ* Infrared Spectroscopy

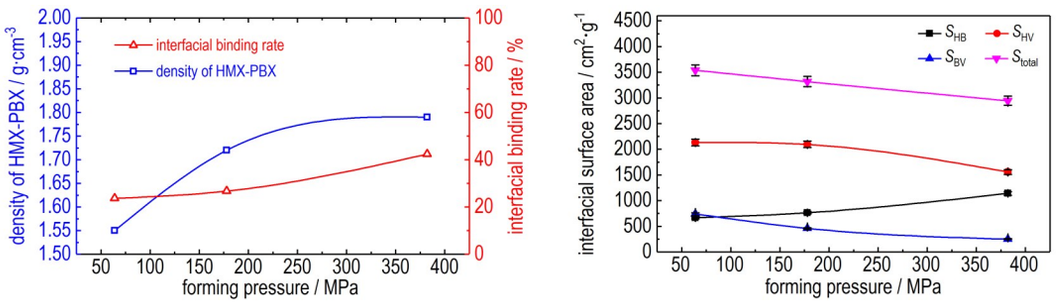


ZHAO Lang, SUN Jie, SUI He-liang, YU Qian, YIN Ying

Chinese Journal of Energetic Materials **(*Hanneng Cailiao*), 2019,27(10):845-852**

Structural evolution of internal and external groups in ε-CL-20 molecule was investigated and compared based on *in-situ* FT-IR.

SANS Investigation on the Effect of Cold-pressed Forming Pressure on the Microstructure of HMX-based PBX



BAI Liang-fei, TIAN Qiang, TU Xiao-qing, YAN Guan-yun, SUN Guang-ai, GONG Jian, HE Guan-song, CHEN Liang, HUANG Shi-liang, LI Xin-xi, LIU Yu

***Chinese Journal of Energetic Materials* (*Hanneng Cailiao*), 2019,27(10):853-860**

The dependence of the density, interfacial binding rate of HMX with binder, individual (S_{HB}, S_{HV}, and S_{BV}) and total interfacial surface area (S_{total}) of cool-pressed PBX on the forming pressure was determined by using the technique of the contrast variation small angle neutron scattering.

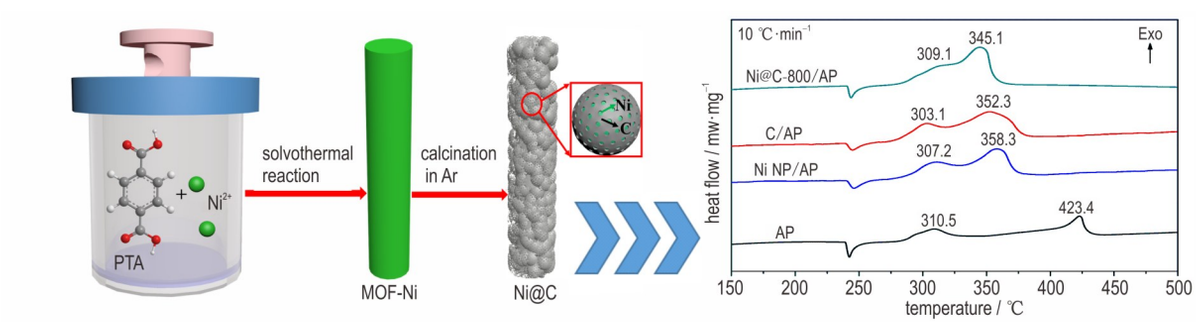
Slow Release Structure Design and Verification of HMX-based Aluminized Explosive Charge Under Slow Cook-off Condition

SHEN Fei, WANG Sheng-qiang, WANG Hui

***Chinese Journal of Energetic Materials* (*Hanneng Cailiao*), 2019,27(10):861-866**

Based on the strength threshold of shell and area threshold of pressure relief channel, a design method of two-stage sealing slow-release structure was proposed. And the method was verified in the cook-off bomb with kilogram charge.

Preparation of Porous Core-shell Structural Ni@C Nanorods and Their Catalytic Properties for Thermal Decomposition of Ammonium Perchlorate

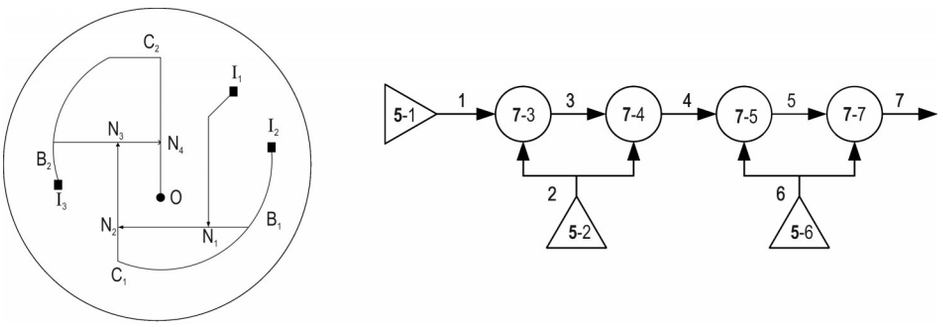


LI Li, KE Xiang, AN Ting, SONG Zhen-wei, WANG Ning, HAO Ga-zi, JIANG Wei

***Chinese Journal of Energetic Materials* (*Hanneng Cailiao*), 2019,27(10):867-874**

Porous core-shell structural Ni@C nanorods, based on the pyrolysis of Ni-MOF, possess an excellent catalytic effect for the thermal decomposition of ammonium perchlorate.

Reliability Analysis of Single Output Explosive Logic Circuit System Based on GO Method

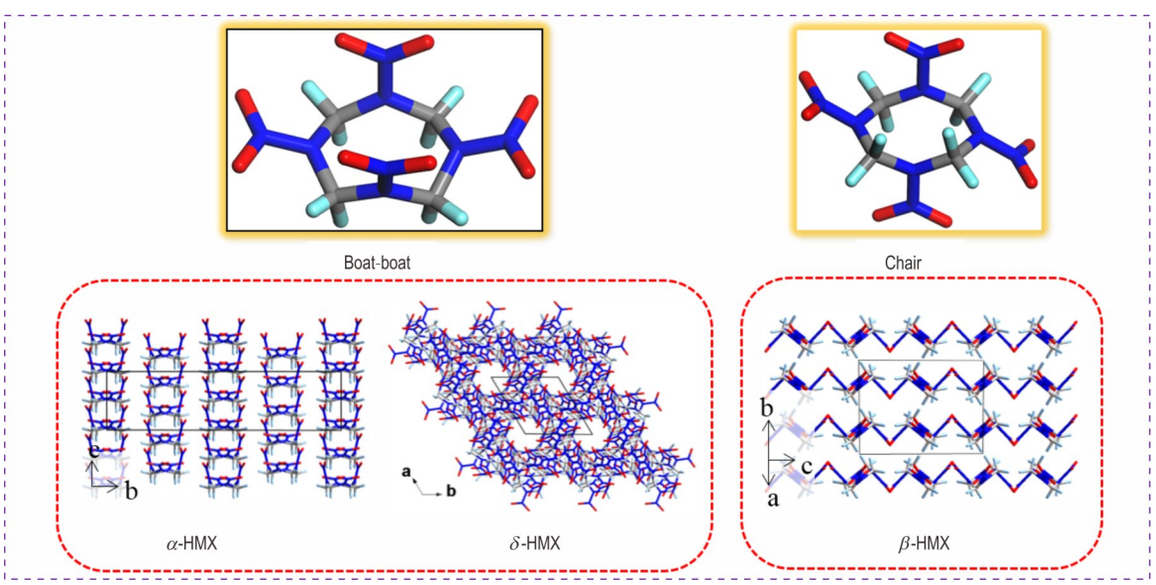


YANG Xiao-yu, LI Yan-hua, WEN Yu-quan, FANG Fu-bo

Chinese Journal of Energetic Materials **(*Hanneng Cailiao*), 2019,27(10):875-882**

According to the working principle of a single output explosive logic circuit system shown in the left part of the figure above and the GO model shown in the right, the state combination method was used for quantitative calculation and qualitative analysis.

Review on Structural Properties of HMX Molecules and Crystals



TIAN Bei-bei, CHEN Li-zhen, ZHANG Chao-yang

Chinese Journal of Energetic Materials **(*Hanneng Cailiao*), 2019,27(10):883-892**

Research progress in the structures and properties of HMX and HMX-based crystals were reviewed from the aspects of molecular conformation structure, crystal conformational energy, lattice energy, crystal packing structure and thermal decomposition mechanism.