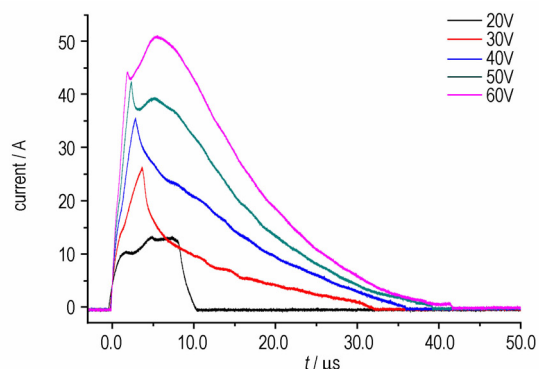


Electrical Explosive Characteristics of Composite Semiconductor Bridge

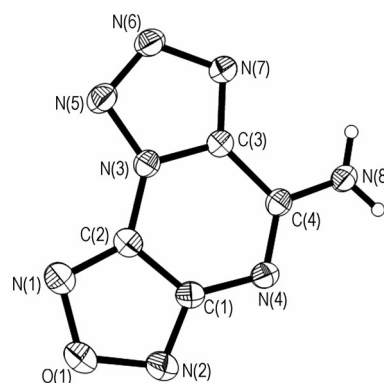


The electrical explosive process of composite semiconductor bridge (SCB) under different charging voltages at 22 μF were studied by high-speed digital oscilloscope. The electrical explosive performance of composite SCB was compared with that of polycrystalline silicon SCB.

XU Xing, ZHANG Wen-chao, QIN Zhi-chun, DENG Ji-ping, WANG Jun, XU Zhen-xiang, ZHOU Bin, PENG Jin-hua

Chinese Journal of Energetic Materials, 2015, 23(1): 7–12

Synthesis, Crystal Structure and Thermal Properties of Two Furazano[3,4-*b*]tetrazolo[1,2-*d*]pyrazines

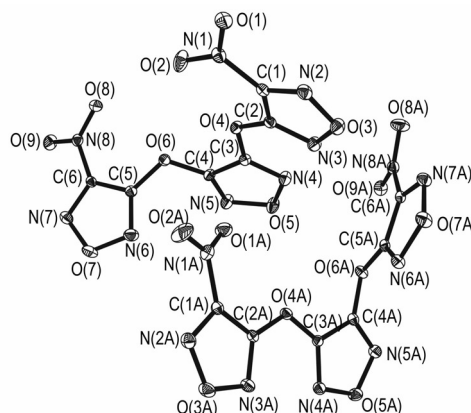


7-Azidofurazano[3,4-*b*]tetrazolo[1,2-*d*]pyrazine (AzFTP) and 7-aminofurazano[3,4-*b*]tetrazolo[1,2-*d*]pyrazine (AmFTP) were synthesized using 5,6-dichlorofurazano[3,4-*b*]pyrazine as starting material, via azidation and amination reaction. The single crystal of AmFTP was firstly cultivated and tested by single-crystal X-ray diffraction.

LIU Ning, WANG Bo-zhou, LI Hui, LI Ya-nan, HUO Huan, ZHAI Lian-jie, LAI Wei-peng

Chinese Journal of Energetic Materials, 2015, 23(1): 13–17

Synthesis, Crystal Structure and Thermal Behavior of 3,4-Bis(3-nitrofurazan-4-oxy) furazan

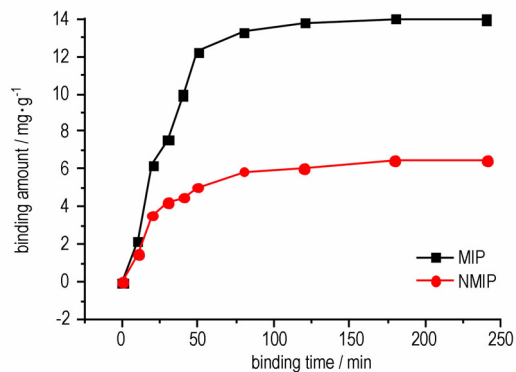


ZHAI Lian-jie, WANG Bo-zhou, HUO Huan, HU Huai-ming, SU Peng-fei, FAN Xue-zhong, LI Hui

Chinese Journal of Energetic Materials, 2015, 23(1): 18–22

3,4-Bis(3-nitrofurazan-4-oxy) furazan was synthesized and characterized by elemental analysis, IR, NMR, DSC, TG-DTG, and single-crystal X-ray diffraction.

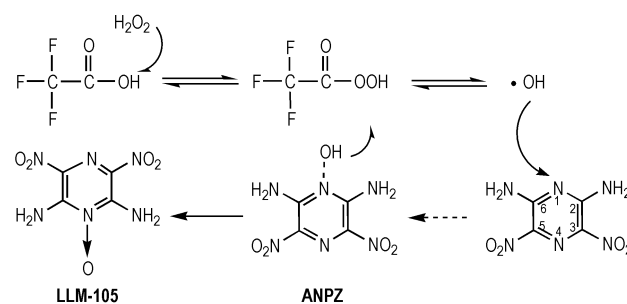
Preparation and Recognition Performance of CL-20 Molecularly Imprinted Polymer Microspheres



CL-20 molecularly imprinted polymer (MIP) microspheres were prepared via precipitation polymerization with CL-20 as template, acrylamide as functional monomer, trimethylolpropane triacrylate as crosslinking agent, acetonitrile as solvent and porogen and AIBN as initiators using molecularly imprinted technology (MIT). The optimum synthetic conditions were obtained.

YI Na, YIN Xiong-fei, ZHAO Bei, WU Yao-guo, HU Si-hai
Chinese Journal of Energetic Materials, 2015, 23(1): 23–28

Synthesis of LLM-105 and Recycling Technology of TFA on Kilogram Scale

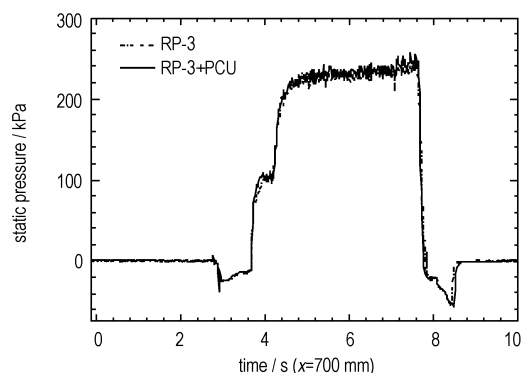


WANG You-bing, HUANG Feng-cheng, ZHANG Meng-meng, HU Lin-lin, ZHOU Jie-wei, ZHANG Chuang-jun
Chinese Journal of Energetic Materials, 2015, 23(1): 29–32

The technology of synthesizing 2,6-diamino-3,5-dinitropyrazine-1-oxide (LLM-105) was studied by oxidation of 2,6-diamino-3,5-dinitropyrazine (ANPZ) on kilogram scale.

Properties of Aviation

Kerosene/Pentacyclo[5.4.0.0^{2,6}.0^{3,10}.0^{5,9}]undecane Blending Fuel



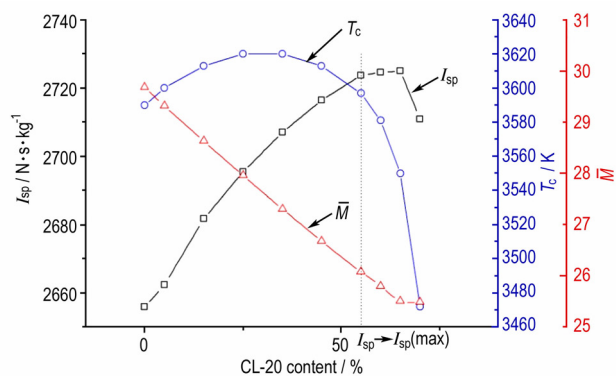
QIU Xian-ping, WEI Wei, WANG Ya, CHEN Ke-hai, LU Tong-jie, JIN Feng, YE Dan-yang

Chinese Journal of Energetic Materials, 2015, 23(1): 33–36

The properties of aviation kerosene RP-3 blending fuels with pentacyclo[5.4.0.0^{2,6}.0^{3,10}.0^{5,9}]undecane (PCU) were studied. The supersonic combustion performances of blending fuel with 0%–25% PCU were measured on a scram jet direct-connect test facility.

Calculation and Analysis on Energy Characteristics of High Energy Propellants Based on BAMO/AMMO Copolymers

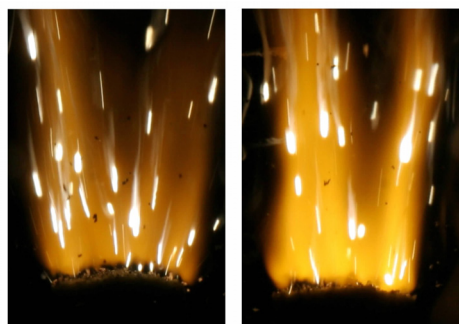
PEI Jiang-feng, ZHAO Feng-qi, SONG Xiu-duo,
XU Si-yu, YAO Er-gang, LI Meng
Chinese Journal of Energetic Materials, 2015, 23(1): 37–42



The energy characteristics of propellants based on BAMO-AMMO copolymers (BAMO/AMMO) were theoretically calculated. The effects of plasticizers, oxidants and high energy fuels on the energy characteristics of BAMO/AMMO based propellants were discussed.

Combustion Performances of RDX-CMDB Propellant with Imidazoles Lead Salt Catalyst

ZHANG Chao, YANG Li-bo, CHEN Jun-bo, YUAN Zhi-feng
Chinese Journal of Energetic Materials, 2015, 23(1): 43–47



The effects of energetic imidazoles lead salt (E-Pb) content and E-Pb-carbon black composite on the combustion performances (burning rate, pressure exponent, combustion flame structure, etc.) for RDX-CMDB propellant were studied.

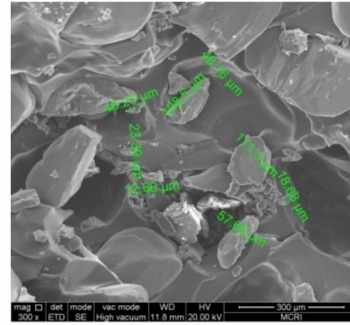
Influence of Temperature on Internal Quality of Pressed RDX-based PBX

Lü Ke-zhen, HAN Chao, GAO Tie-bang, CHEN Xue-ping,
FENG Li-yang, ZHU Xing-hu, LAN Qiong
Chinese Journal of Energetic Materials, 2015, 23(1): 48–52



The influence of pressing temperature, cooling rate and heating rate on cracks of $\Phi 60$ mm \times 60 mm RDX-based PBX were studied using ultrasonic, X-ray, and density detection.

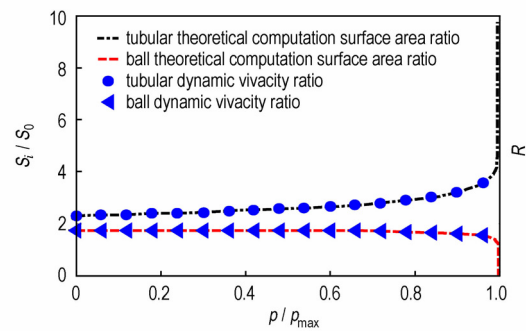
Fracture Feature of AP Grains with Different Sizes within Explosive Substrate under Drop Hammer Impact Loading



Three kinds of AP/HTPB samples were prepared using three kinds of AP grains with intermediate diameter of 6-8 μm, 130 μm and 300 μm. The samples were damaged by drop hammer impact loading. The samples after impact were reclaimed and the fracture feature of AP grains was studied using SEM.

SUN Pei-pei, WANG Xiao-feng, NAN Hai, GUO Xin
Chinese Journal of Energetic Materials, 2015, 23(1): 53-56

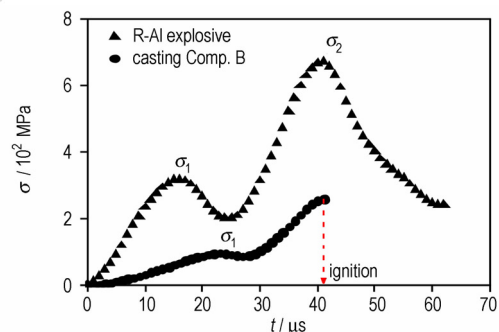
Characterization Method for Fragmentation Degree of Propellant Charge



To characterize the fragmentation degree of propellant charge quantitatively, the concepts of dynamic vivacity ratio and initial dynamic vivacity ratio (IDVR) were introduced. IDVR can denote the fragmentation degree of fragmented propellant charge quantitatively, which was approved by theoretical deduction, numerical simulation and experiments.

WANG Yan, RUI Xiao-ting, FENG Bin-bin, CHEN Tao,
 WANG Guo-ping
Chinese Journal of Energetic Materials, 2015, 23(1): 57-61

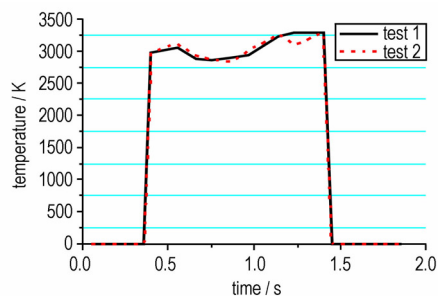
Launch Safety of RDX-based Aluminized Explosive



The launch safety of RDX-based aluminized explosive (R-Al explosive) was studied by 400 kg large drop hammer experiment and one-stage light-gas gun experiment. The stress-time curves of the explosive charge were obtained under the two different experimental conditions. Comparison of the launch safety of R-Al explosive and casting Comp. B was carried out.

XIAO Wei, LI Liang-liang, QU Ke-peng, FU Gai-xia
Chinese Journal of Energetic Materials, 2015, 23(1): 62-66

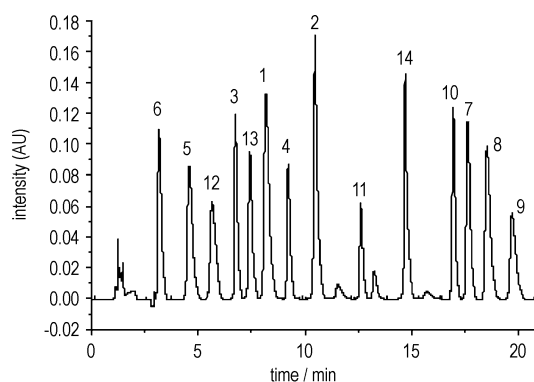
High Temperature Measurement of Combustion Gas in Solid Rocket Motor Utilizing Alexandrite Effect



The temperature measurement principle utilizing Alexandrite effect was introduced, and the effects of the engine diameter and the heat loss on the axis temperature of combustion chamber were studied by numerical simulation. The gas temperature measurement system of rocket motor utilizing Alexandrite effect was established. The combustion temperatures at atmosphere, the combustion temperature in combustion chamber, the gas temperature at nozzle exit of three composite propellants with different amounts of aluminum were measured.

HU Song-qi, CHENG Jing, LIU Kai, HUANG Hong-yong
Chinese Journal of Energetic Materials, 2015, 23(1): 67–72

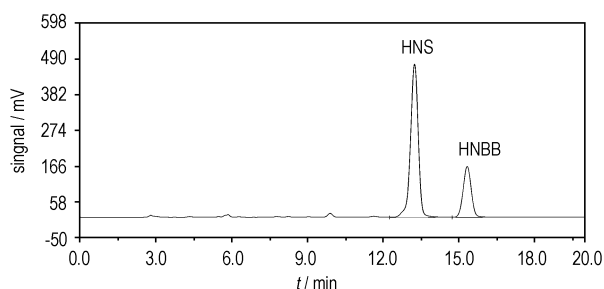
Simultaneous Determination of 14 Nitrophenol Compounds by QuEChERS-Ultra Performance Liquid Chromatography



With an ultra performance liquid chromatography (UPLC), the simultaneous determination was established for fourteen nitrophenol compounds in soil and ground sediment of production areas of energetic materials.

LIU Yu, ZHANG Tong-lai, YANG Li, LIU Rui, LIU Ying
Chinese Journal of Energetic Materials, 2015, 23(1): 73–79

Assay of Hexanitrostilbene by High Performance Liquid Chromatography

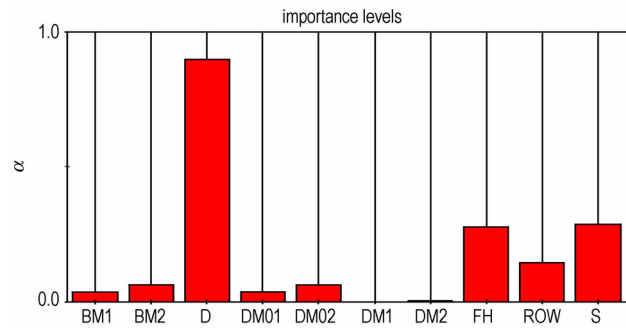


A high performance liquid chromatography (HPLC) to analyze main ingredient hexanitrostilbene (HNS) and the main impurity hexanitrobiphenyl (HNBB) was established.

ZHAO Yun-yíng, CEHN Jun, CHEN Fang, CAO Duan-lin, WANG Jian-long
Chinese Journal of Energetic Materials, 2015, 23(1): 80–84

Reliability Design and Optimization of a Retracting Actuator Based on NNESSUS

MU Hui-na, WEN Yang, GUO Shao-wei, ZHANG Yao
Chinese Journal of Energetic Materials, 2015, 23(1): 85–88



The reliability analysis for a retracting actuator was carried out by NNESSUS software based on the stress-strength interference theory. The design reliability value was obtained. The sensitivity and importance analysis on random variables which affect the design reliability were done.

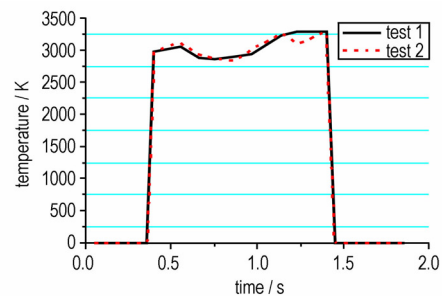
Progress on Combustion Catalysts of Solid Propellant

WANG Ya-le, WEI Zhi-xian, KANG Li
Chinese Journal of Energetic Materials, 2015, 23(1): 89–98

The progress on combustion catalysts of solid propellants in recent years was reviewed with 76 references.

Preparation and Characterization of Tetrazolyl-functionalized Single Walled Carbon Nanotubes

Ji Xiao-tang, BU Jian-hua, GE Zhong-xue, LI Tao-qi,
 SU Hai-peng, LIU Qing, ZHU Yong, XIAO Xiao
Chinese Journal of Energetic Materials, 2015, 23(1): 99–102



The single-wall carbon nanotubes functional modified with tetrazolyl groups (SWCNTs-CN₄) was firstly prepared and characterized by Raman spectroscopy, X-ray photoelectron spectroscopy and attenuated total reflectance-fourier transform infrared spectroscopy (ATR-FTIR).

Executive editor: WANG Yan-xiu JIANG Mei ZHANG Qi