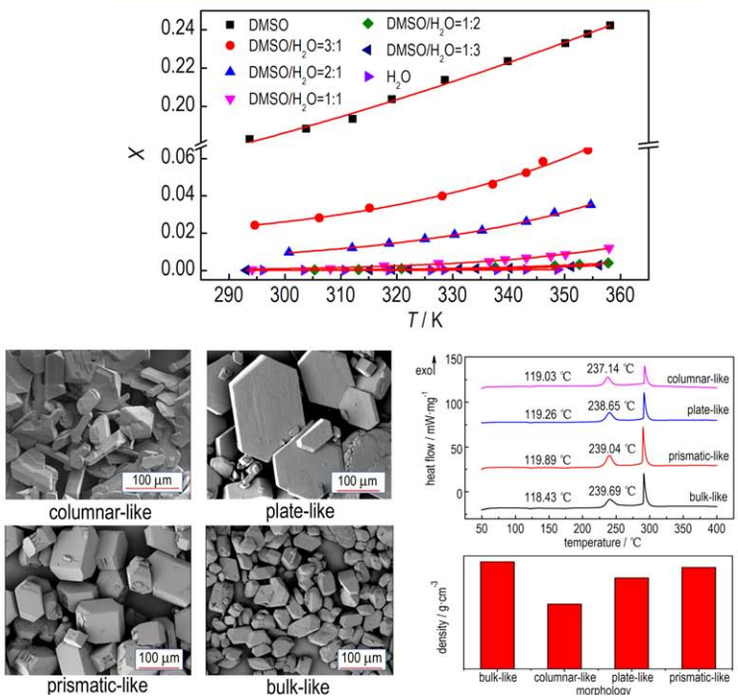
Crystallization of FOX-7 in DMSO-H_2O Binary Mixed System

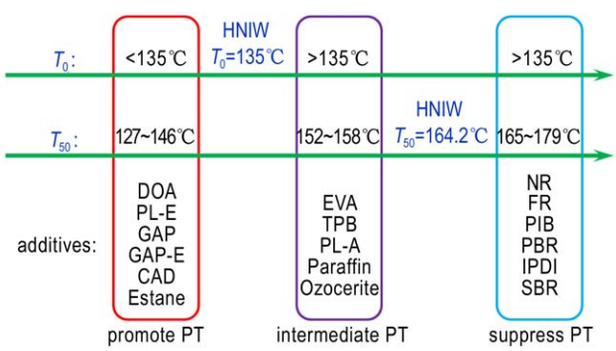


LIU Lu, LIU Cai-lin, YANG Hai-jun, HAO Shi-long, ZHOU Xiao-qing, LI Hong-zhen

***Chinese Journal of Energetic Materials*, 2018, 26(8): 638-644**

The solubility of FOX-7 in dimethyl sulfoxide (DMSO), water (H_2O) and its binary mixed solvent in the range of 20-95 ℃ and the metastable zone width of binary solvent mixtures DMSO/H_2O=2∶1 (in volume ratio) were measured. Crystal characteristics of FOX-7 under various crystallization conditions were investigated by cooling crystallization, and their basic performance parameters test and thermal analysis were carried out.

Influence and Action Mechanism of Additives on Heat-induced Polymorphic Transformation of HNIW

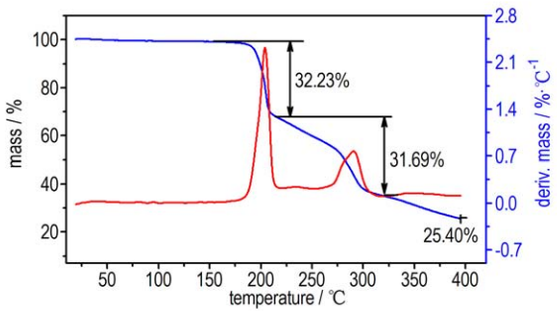


XU Jin-jiang, LIU Yu, ZHANG Hao-bin, SUN Jie

***Chinese Journal of Energetic Materials*, 2018, 26(8): 645-652**

The effects of additives on the heat-induced polymorphic transformation (PT) of HNIW in composite explosives were investigated by means of in-situ XRD.

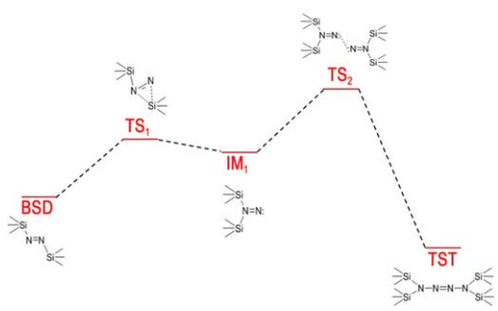
Thermal Behaviors of Bis(nitroguanidine)methane (BNGM)



The thermal behavior, specific heat capacity, adiabatic time-to-explosion of bis(nitroguanidine) methane (BNGM) were studied by differential scanning calorimetry (DSC), micro-DSC, thermogravimetry /differential thermogravimetry (TG/DTG) and its impact sensitivity was determined.

GUAN Xiao-ge, LI Jing, LI Yan-feng, XU Kang-zhen, SONG Ji-rong, ZHAO Feng-qi
Chinese Journal of Energetic Materials, **2018,26(8):653-658**

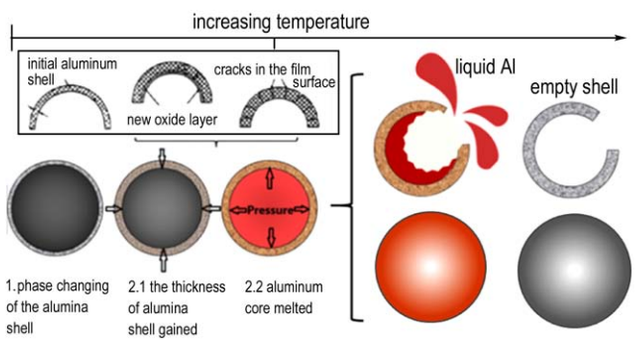
Synthesis and Reaction Mechanism of Tetrakis (trimethylsilyl)tetrazene



Tetra(trimethylsilyl)tetrazene was synthesized via dimerization reaction of 1,2-bis(trimethylsilyl)diimine. The DFT calculation shows that this reaction involves two steps: 1,2-bis (trimethylsilyl) diimine is firstly isomerized to 1, 1-bis (trimethylsilyl) diimine intermediate and then two 1, 1-bis (trimethylsilyl) diimine intermediates coupled to form tetra (trimethylsilyl)tetrazene.

DING Ke-wei, LI Tao-qi, XIAO Xiao, BU Jian-hua, TONG Min-chao, GE Zhong-xue
Chinese Journal of Energetic Materials, **2018,26(8):659-663**

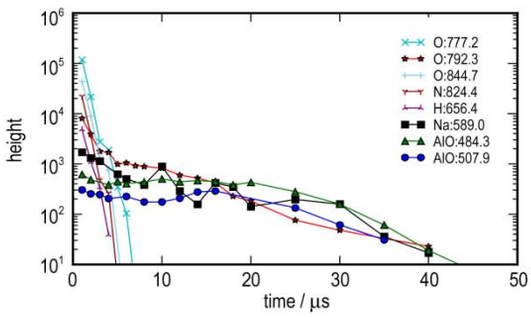
Alumina Shell Enhancement of Micron-sized Aluminum Powder and Its Anti-oxidized Properties

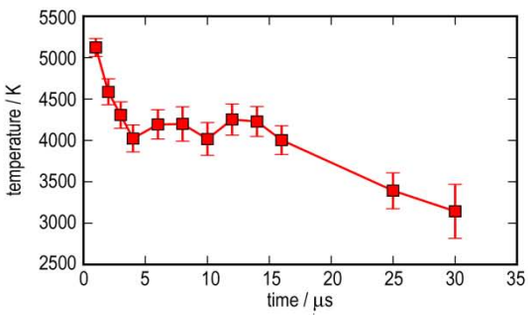


To improve the oxidation resistance of the micron-sized aluminum powders, the alumina shell of aluminum powders was enhanced via heating the micron-sized aluminum powder to 650 ℃ in oxygen atmosphere using a thermal analyzer.

LIU Yang, JIAO Qing-jie, YAN Shi, WANG Hui-xin, SUN Ya-lun, REN Hui
Chinese Journal of Energetic Materials, **2018,26(8):664-670**

Emission Spectrum Distribution and Transient Temperature Measurement of Aluminized Explosives Under Laser Ablation



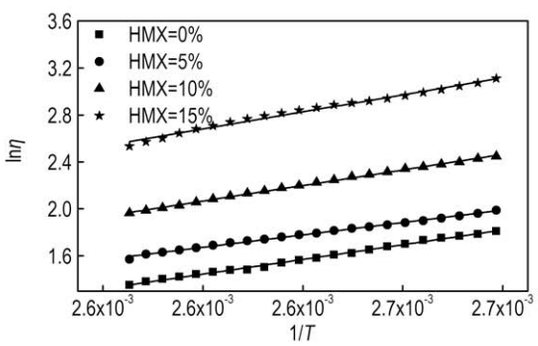


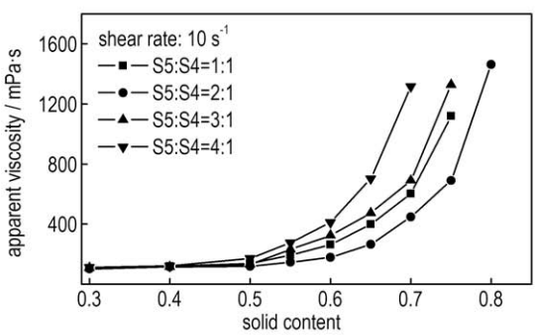
GUO Wen-can, ZHENG Xian-xu, ZHANG Xu, ZHAO Jun, LIU Cang-li

Chinese Journal of Energetic Materials, **2018, 26(8): 671-676**

Using laser ablation, we obtained the emission spectra from RDX based explosive at different time, and calculated the transient temperature of the reaction region based on the molecular spectrum of AlO.

Rheological Properties of DNAN/HMX Melt-cast Explosives



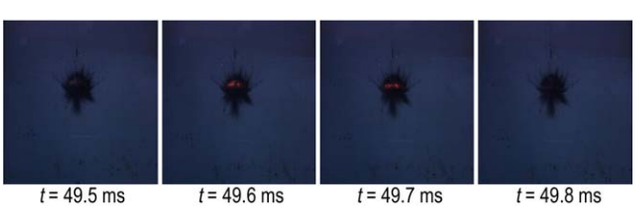


MENG Jun-jiong, ZHOU Lin, JIN Da-yong, CAO Shao-ting, WANG Qin-hui

Chinese Journal of Energetic Materials, **2018, 26(8): 677-685**

The influences of HMX solid content, system temperature, particle size, particle gradation and functional additives on DNAN/HMX suspensions were investigated by measuring the apparent viscosity of DNAN/HMX suspensions with a Couette type Brookfield viscometer.

Experimental Study and Numerical Simulation of CL-20-Based Aluminized Explosive in Underwater Explosion



FENG Song, RAO Guo-ning, PENG Jin-hua

Chinese Journal of Energetic Materials, **2018, 26(8): 686-695**

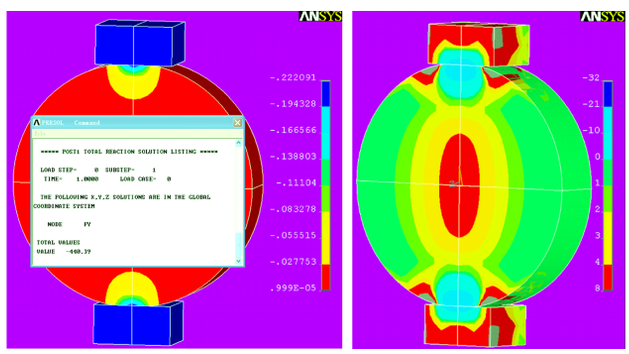
Two kinds of CL-20-based polymer bonded explosives (PBXs) with aluminum contents of 0 and 15% were prepared to study the underwater explosion process. The images of pressure histories, bubble periods and bubble pulse of shock wave were obtained.

Response Characteristics of HAE Charge with Different Sealing Condition and Coating Layer in Fast Cook-off

The response characteristics of HMX-based aluminized explosive (HAE) with different pressure relief area and the heat-insulation coefficient of coating layer under the condition of external fire were studied.

LI Liang-liang, SHEN Fei, QU Ke-peng, WANG Hui, XIAO Wei
Chinese Journal of Energetic Materials,2018,26(8):696-700

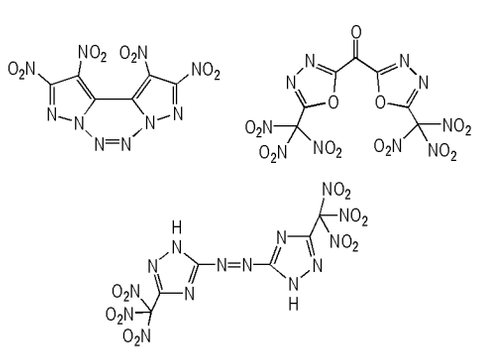
Quasi-static Tension-compression Nonlinear Constitutive Model of TATB-based PBX and its Application



Numerical implementation of the Boltzmann function based two-parameter constitutive model is accomplished in the finite element software.

TANG Wei, YUAN Hong-wei, WEN Mao-ping, ZHAO Long, YAN Xi-lin
Chinese Journal of Energetic Materials,2018,26(8):701-707

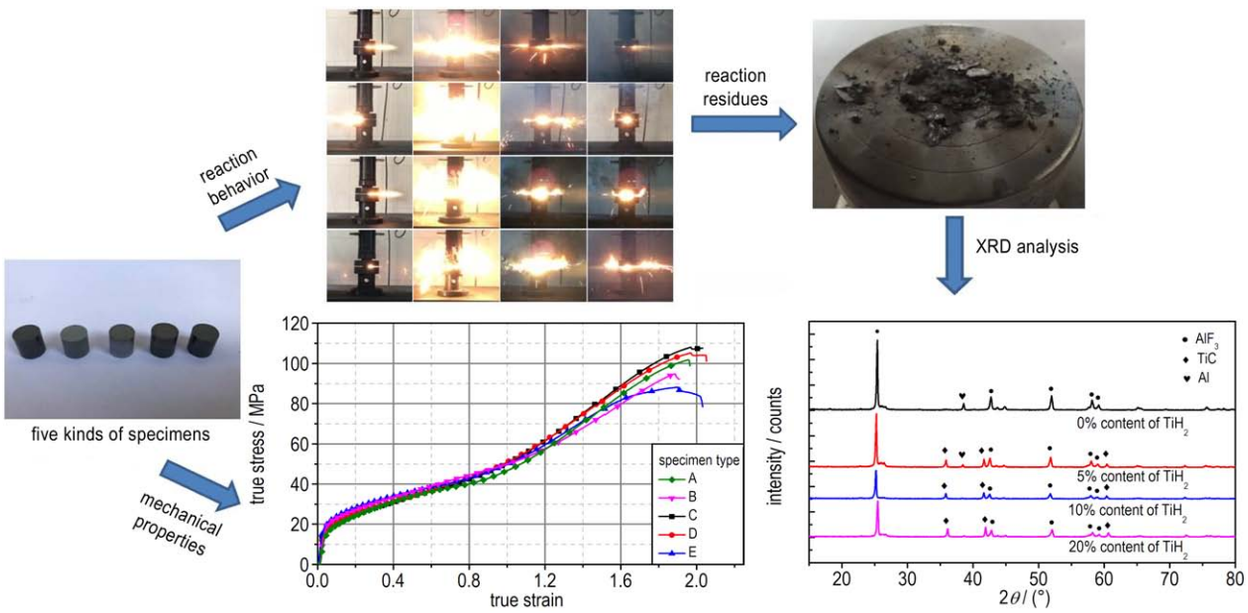
Progress of the Synthesis of Nitrogen-rich Energetic Compounds Containing Oxygen



Nitrogen-rich energetic compounds containing oxygen have attracted great attention due to their excellent features such as high percentage of nitrogen, low carbon and hydrogen content, good oxygen balance and high enthalpy of formation. They have an optimistic and bright foreground for applying to the fields of high energetic explosive, pyrotechnics and solid rocket propellant.

WANG Hong-she, DU Zhi-ming, HAN Zhi-yue
Chinese Journal of Energetic Materials,2018,26(8):708-719

Effect of TiH_2 Content on Mechanical Properties and Reaction Characteristics of Al/PTFE Under Quasi-Static Compression



Five kinds of specimens with different content of TiH_2 were prepared by cold isostatic pressing and vacuum sintering process, the mechanical properties and reaction behavior of Al/TiH_2/PTFE reaction materials were investigated by quasi-static compression experiments. The stress-strain curves and the reaction phenomena were recorded, the reaction residues were analyzed by XRD and the reaction mechanism was discussed.

YU Zhong-shen, FANG Xiang, GAO Zhen-ru, LUO Xian-nan, WU Jia-xiang, ZHANG Jun, LI Yu-chun

Chinese Journal of Energetic Materials, 2018, 26(8): 720-724