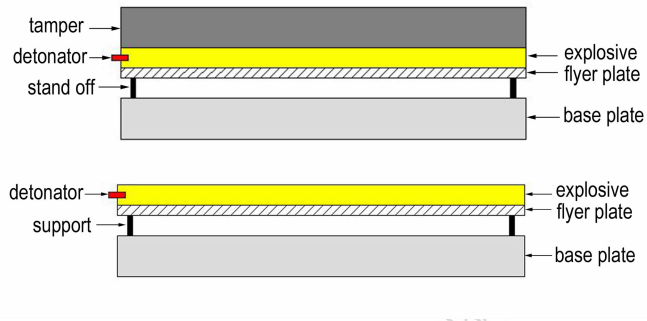
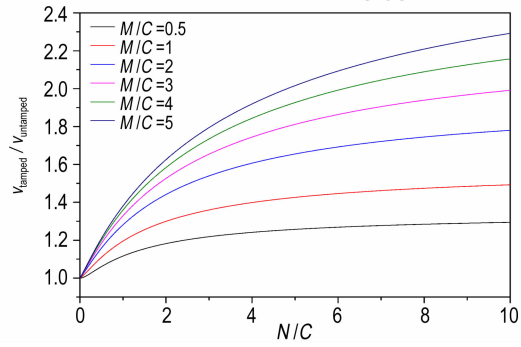
Explosive Welding of 304 Stainless Steel to Q235 Steel with Multidimensional Constraint Charge



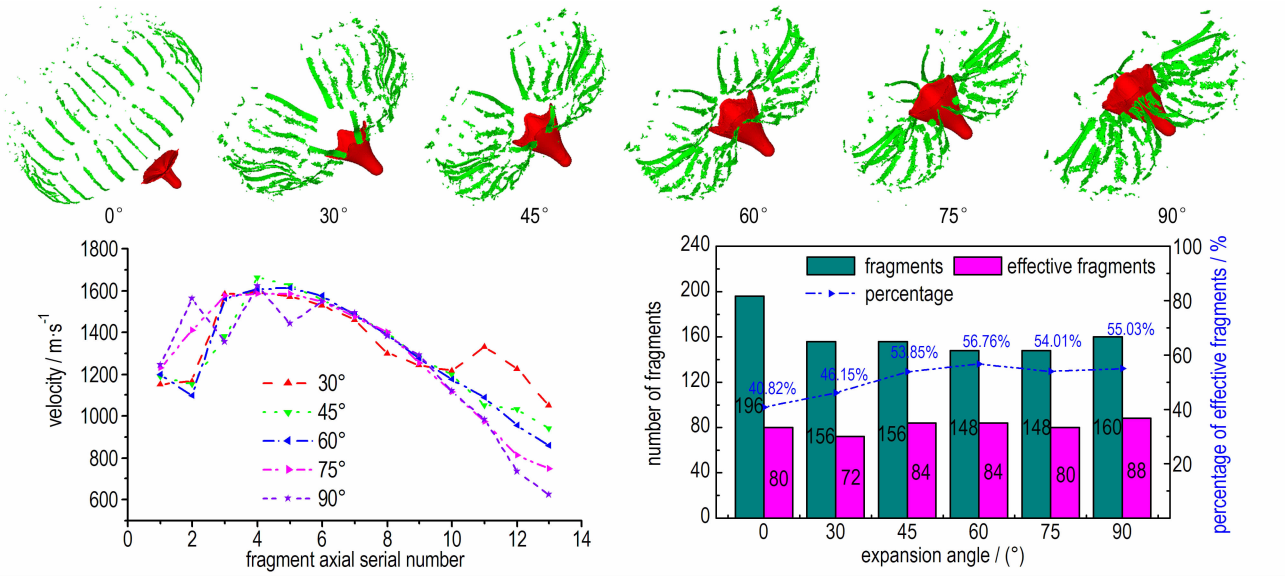


YANG Ming, MA Hong-hao, SHEN Zhao-wu, LI Xue-jiao, ZHOU Guo-an

***Chinese Journal of Energetic Materials*,2018,26(5): 377-382**

The new explosive cladding setup, aluminum honeycomb emulsion explosive tamped by a cover plate on the upper end of the explosive, were presented. The study can improve the energy utilization ratio of explosives for explosive welding.

Effect of Expanding Angle and Initiation Position on the Performance of Axial-expanding Directional Warhead

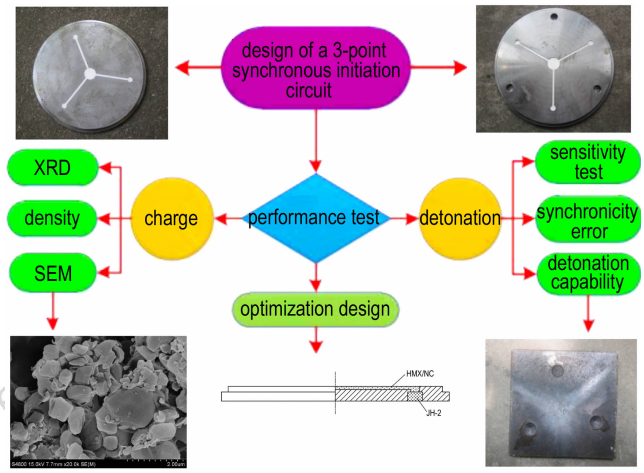


HONG Xiao-wen, LI Wei-bing, LI Wen-bin, LI Rui, GUO Teng-fei

***Chinese Journal of Energetic Materials*,2018,26(5): 383-389**

The damage effectiveness of axial expanded directional warhead was studied by using AUTODYN software. The effect of the expanding angle on the velocity and mass distribution of the fragment in the axial-expanding directional warhead was analyzed.

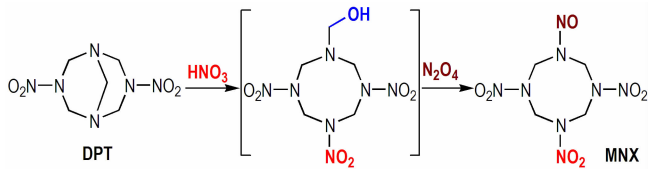
Experimental and Performance Test of a Multi-point Initiation Synchronicity Charge



A rigid 3-piont synchronous initiation circuit with booster explosive (ultrafine HMX/NC = 95/5) was designed. The micro structure and composition of booster were characterized by SEM and XRD. The circuit detonation performances, such as detonation capability, synchronicity error and sensitivity were measured. The rigid 3-piont synchronous initiation circuit was optimized.

LI Rui, LI Wei-bing, GUO Xiao-de, HUANG Yin-sheng, LIANG Li, ZHANG Dong-dong, LI Wen-bin, WANG Xiao-ming
Chinese Journal of Energetic Materials, **2018**, **26**(**5**): **390**−**397**

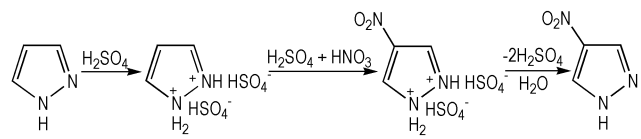
Synthesis of MNX from DPT in Red Fuming Nitric Acid



A nitrosolysis mechanism involving redox process was proposed for the conversion of DPT in fuming nitric acid. Based on this mechanism, a new method to prepare MNX from DPT in red fuming nitric acid was developed.

ZHANG Yu, XU Zi-shuai, GU Guang-hui, ZHANG Lu-yao, LUO Jun
Chinese Journal of Energetic Materials, **2018**, **26**(**5**): **398**−**403**

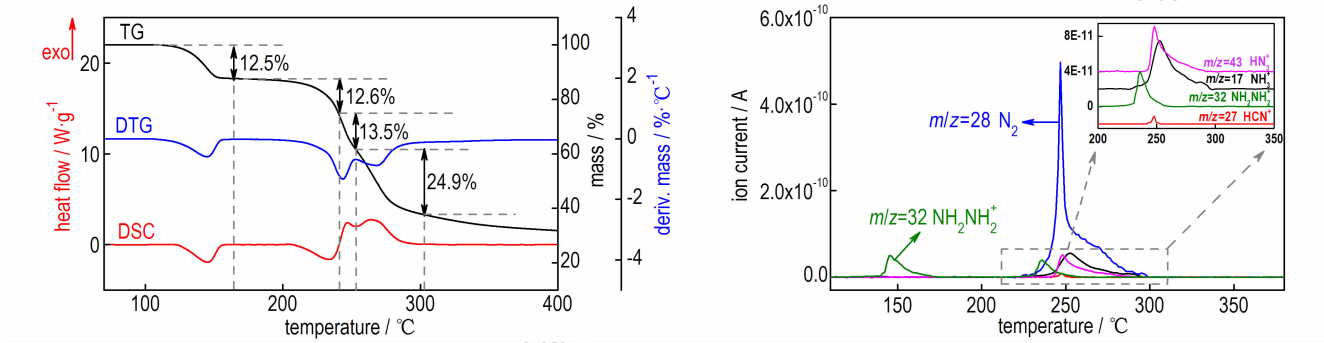
One-Pot Two Steps Synthesis of 4-Nitropyrazole and Its Crystal Structure



4-Nitropyrazole was synthesized via a "one-pot two steps" method using pyrazole as raw material, fuming nitric acid (w=98%)/20% oleum as nitrating agent. The product was characterized by IR, ^{1}H NMR, ^{13}C NMR, HRMS, elemental analysis and single crystal X-ray diffraction.

LI Yong-xiang, DANG Xin, CAO Duan-lin, CHAI Xiao-xiao
Chinese Journal of Energetic Materials, **2018**, **26**(**5**): **404**−**409**

Thermal Decomposition Behavior of Dihydrazinium Salt of Bis(5-amino-1,2,3,4-tetrazolium)

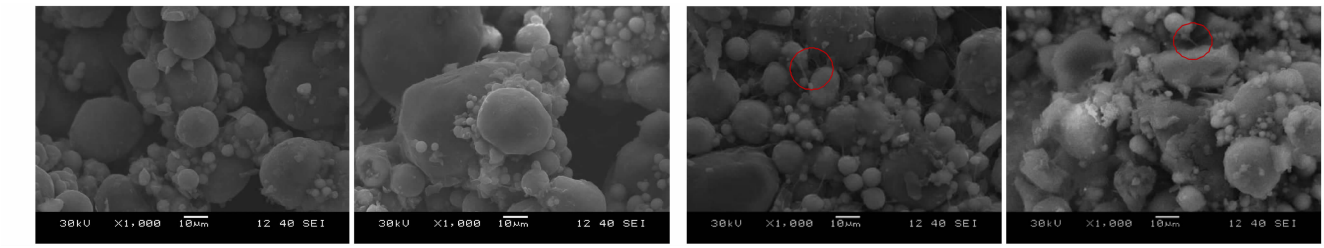


WANG Liang-liang, LIU Yan, ZHAO Shou-tian

Chinese Journal of Energetic Materials,2018,26(5): 410-415

The thermal decomposition behavior ofdihydrazinium salt of bis(5-amino-1,2,3,4- tetrazolium) Hy_2BTA and its gas products were investigated by TG-DSC-FTIR-MS. The most possible thermolysis mechanism of Hy_2BTA was proposed.

Effect of Accelerated Aging on the Performances of RDX-based Pressed PBX

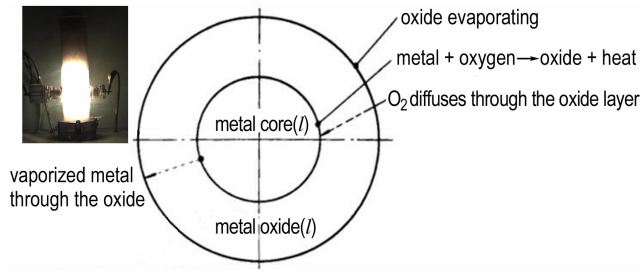


LI Kai-li, XU Tong, LI Xi, HAN Zhi-wei, WANG Bo-liang

Chinese Journal of Energetic Materials,2018,26(5): 416-421

The mass, volume, the vacuum stability, mechanical performance and mechanical sensitivity of RDX-based PBX grain before and after aging were measured by high temperature accelerated aging test. The change situation of microstructure, elemental content and chemical environment of the explosive was observed by SEM and XPS.

Effect of Magnesium Hydride on the Minimum Ignition Energy of Metal Mixture

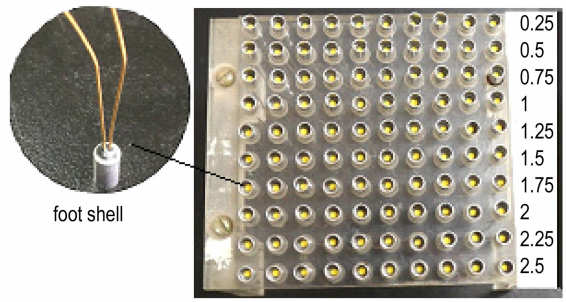


ZHAO Jin-gang, LI Yu-yan, LIU Da-bin, XU Sen, PAN Feng

Chinese Journal of Energetic Materials,2018,26(5): 422-425

The minimum ignition energy (MIE) of Al, B and MgH_2 were determined and investigated by the 1.2L Hartmann tube apparatus, and the effect of MgH_2 content on the MIE of binary metal mixtures, Al-MgH_2 and B-MgH_2, was studied. The MIE of ternary metal mixture Al-B- MgH_2 was also researched under the conditions of different boron and MgH_2 contents.

Effect of Silicon Carbide Conductive Adhesive on the Performance of Electric-explosive Device



Ten kinds of silicon carbide conductive adhesive materials were used to test the static sensitivity and ignition sensitivity. A standard electric-explosive device was studied which the distance is 0.78 mm and lead is only painted. 4 different DC voltages are applied to the shell and foot of the electric initiating explosive tube before and after gluing respectively. The insulation resistance of the product under 50 V voltage was test after the 30 kV electrostatic experiment.

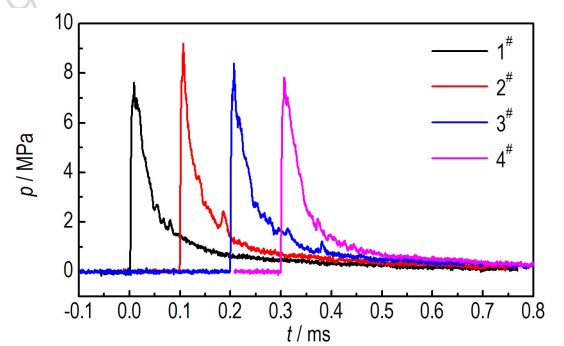
BAI Ying-wei, LI Hui , CHEN Zhen, REN Wei, CHU En-yi
Chinese Journal of Energetic Materials,2018,26(5): 426-431

Thermodynamic Research on Six Kinds of Blue Light Pyrotechnic Compositions

The relation on enthalpy of combustion reaction, burning temperature and luminescent photon numbers of the blue light pyrotechnic compositions was built. The emitter of blue light in the six pyrotechnic flames was confirmed. The optimization of formulation for the blue light pyrotechnic compositions was carried out.

BA Shu-hong, JIANG Da-qian, WANG Shu-tao
Chinese Journal of Energetic Materials,2018,26(5): 432-435

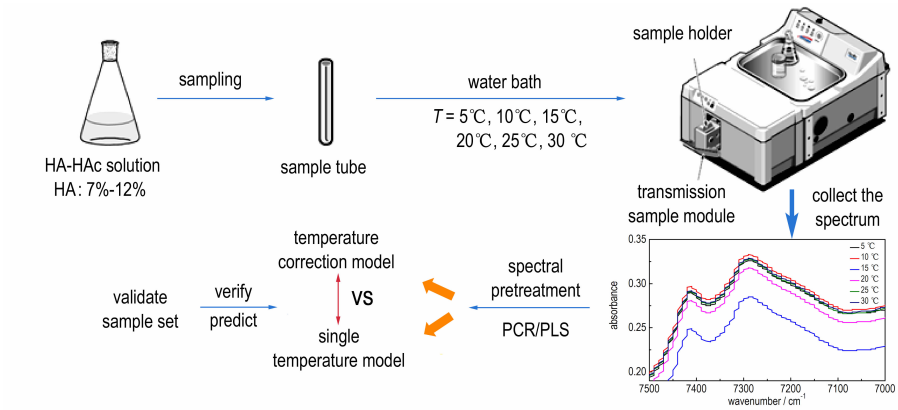
Detonation Performance of Emulsion Explosives Sensitized by Hydrogen Storage Glass Microspheres



The performance of emulsion explosives sensitized by hydrogen storage glass microspheres were studied by underwater explosion experiments and brisance experiments. The energy parameters of underwater explosion and lead cylinder compression value were obtained. The brisance theory was also studied.

WANG Bo, MA Hong-hao, SHEN Zhao-wu, YANG Ming, CHEN Hai-jun, WANG Yi-xin
Chinese Journal of Energetic Materials,2018,26(5): 436-440

Study on Temperature Calibration Model of Hexamethylenetetramine (HA) Content in HA-HAc Solution by Near Infrared Spectroscopy Method

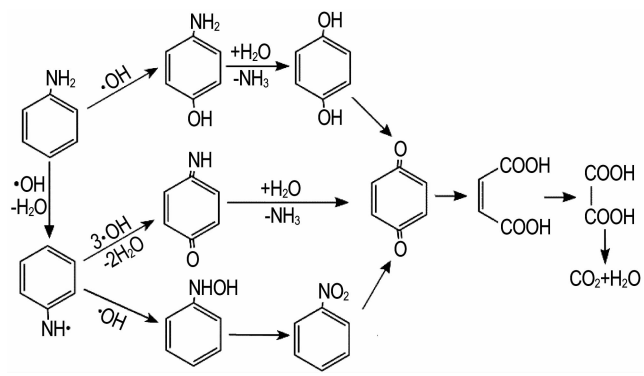


LIANG Hui, LI Li-jie, JIN Shao-hua, CHEN Shu-sen, YU Xiao-fei, LI Xiao-xia

Chinese Journal of Energetic Materials, 2018, 26(5): 441-447

Quantitative analysis model was built to rapidly analyze the HA content in HA-HAc (hexamethylenetetramine-acetic acid) solution by near infrared (NIR) spectroscopy. The prediction error of temperature correction model is less than that of single temperature model.

Deep Oxidation Degradation of Aniline Wastewater by O_3/Fe (Ⅱ) Process Enhanced Using High-Gravity Technology

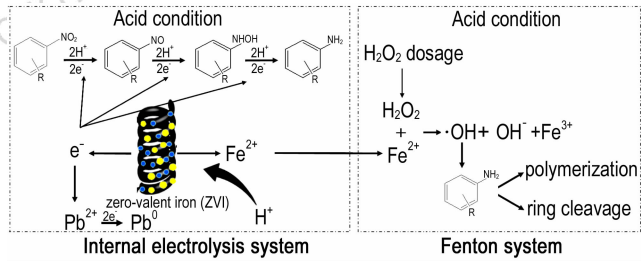


QIN Yue-jiao, GENG Shuo, JIAO Wei-zhou, LIU You-zhi

Chinese Journal of Energetic Materials, 2018, 26(5): 448-454

Possible pathways of the catalytic oxidation degradation of AN by O_3 were presented.

Integrated Process of Physico-chemical Treatment and Bioaugmentation for the Treatment of Wastewater from the Manufacture of Hybrid Initiating Explosive



WANG Ning, MA Fang-ping, ZHANG Guo-yin, QIU Wei, LEI Bo, CHEN Long, MOU He-qiao, JIANG Xin-bai, WANG Lian-jun, SHEN Jin-you

Chinese Journal of Energetic Materials, 2018, 26(5): 455-460

In internal electrolysis system, both nitroaromatic compounds and Pb^{2+} could be effectively converted through the reduction by zero valent iron, with Fe^{2+} released simultaneously. The effluent from internal electrolysis system was further treated in Fenton oxidation system, where Fe^{2+} from internal electrolysis system acted as Fenton catalyst.
