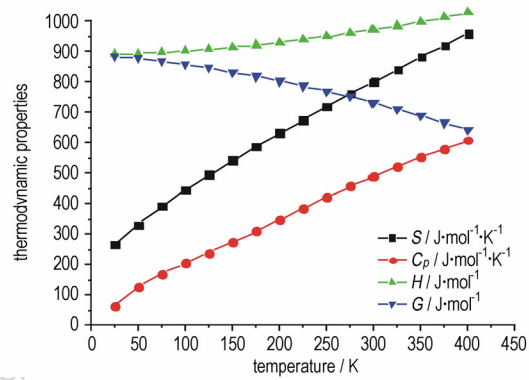
Theoretical Study of *s*-Tetrazine Bi-substituted by Amido, Hydrozino and Azido Groups

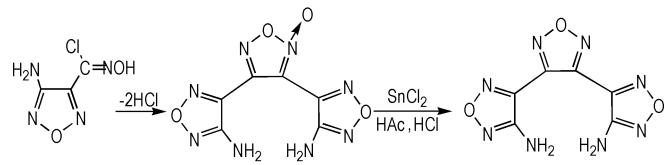


MAN Tian-tian, SHANG Jing, FENG Jin-ling, ZHANG Jian-guo, SHU Yuan-jie, ZHANG Tong-lai, ZHOU Zun-ning

Chinese Journal of Energetic Materials, 2013, 21(3): 281 −288

Energy band, thermodynamic properties and density of state of DHT, DATz and DIAT were calculated with Materials Studio Program under GGA-PW91/DNP.

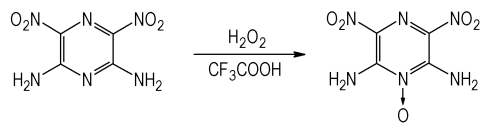
Synthesis and Characterization of 3, 4-Bis-(3′-aminofurazal -4′-yl)-furazan (BATF)



JIA Si-yuan, ZHANG Hai-hao, WANG Bo-zhou, ZHOU Yan-shui, HUO Huan

Chinese Journal of Energetic Materials, 2013, 21(3): 289 −293

Preparation Improvement of LLM-105 Explosive

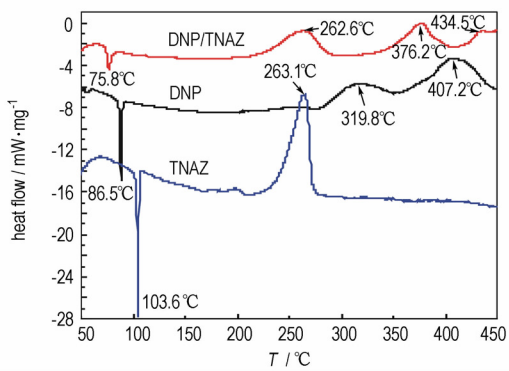


DENG Ming-zhe, ZHOU Jie-wen, WANG Bo-zhou, YE Zhi-hu, TIAN Zhan-huai

Chinese Journal of Energetic Materials, 2013, 21(3): 294 −296

1-Oxide-2, 6-diamino-3, 5-dinitropyrazine (LLM-105) was synthesized using 2, 6-diamino-3, 5-dinitropyrazine as starting material and high concentration hydrogen peroxide solution as oxidizing agent.

Thermal Behaviors of 3, 4-Dinitrophyrazole and its Compatibility with Some Explosive Component Materials

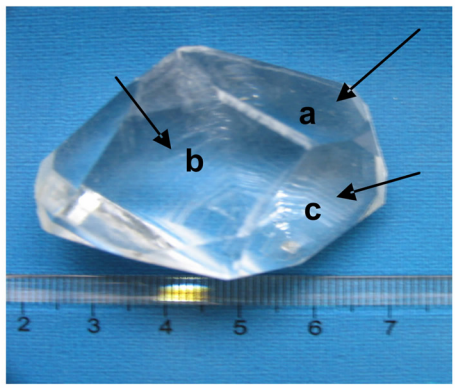


JIANG Qiu-li, WANG Hao, LUO Yi-ming, WANG Wei, XIE Zhong-yuan, GAO Jie

Chinese Journal of Energetic Materials, 2013, 21(3): 297 −300

Thermal behaviours of DNP and compatibilities beween DNP and some explosive component materials obtained by DSC, TG/DTG and VST was studied.

Growth-induced Dislocation of RDX Single Crystal

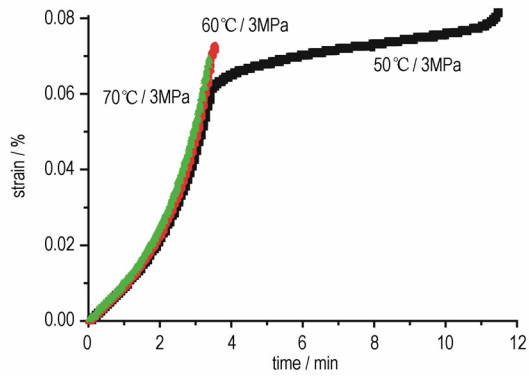


Bulk (about 40 mm×40 mm×30 mm) single crystal of cyclotrimethylene trinitramine (RDX) was prepared from acetone solution by solvent evaporation techniques. The growth-induced dislocation in RDX single crystals was estimated by high-resolution X-ray Triple Axis diffraction (TAXRD) rocking curve (ω-scan), and the full width at half maximum (FWHM) of (210), (200) and (111) planes were 35.35, 45.31 and 77.92 arcsec respectively.

ZHOU Xiao-qing, LI Hong-zhen, XU Rong, WANG Shu-cun, HUANG Ming

Chinese Journal of Energetic Materials, 2013, 21(3): 301 -305

Mechanical Properties of TATB Based PBX at High Temperature



The mechanical properties of TATB based polymer bonded explosive (PBX) were tested at high temperature, and the morphology of rapture section was observed by scanning electric microscopy(SEM).

TU Xiao-zhen, ZHANG Bo, WEI Xing-wen, WANG Wei-xin

Chinese Journal of Energetic Materials, 2013, 21(3): 306 -309

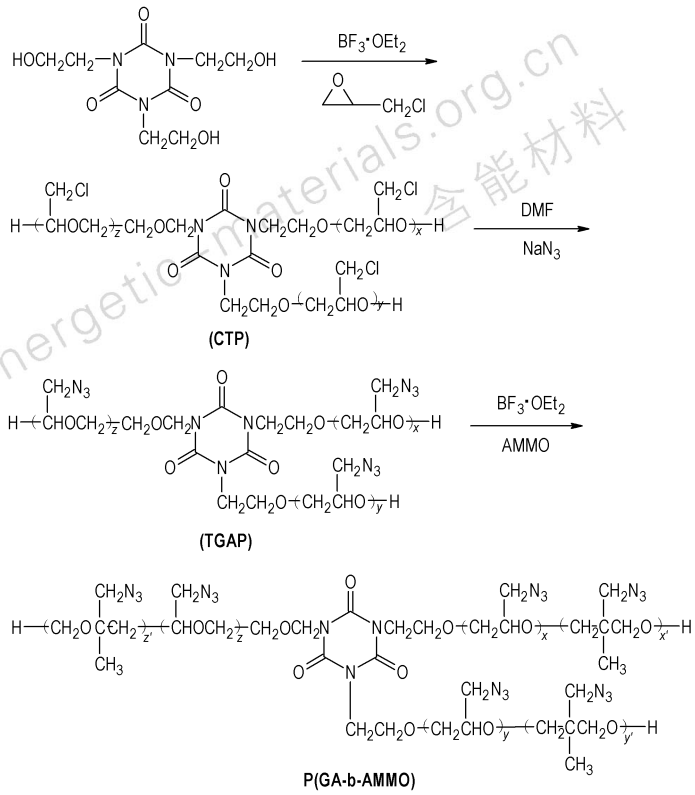
Electrochemical Synthesis and Characterization of Nitrogen Trichloride

By electrochemical oxidation of ammonium chloride solution and hydrochloric acid, nitrogen trichloride was synthesized. Carbon tetrachloride was added to extract the product in situ prior to electrochemical procedure. The main reaction conditions were observed.

JI Xiao-tang, GE Zhong-xue, LIU Qing, LI Tao-qi, DING Ke-wei, LUAN Jie-yu

Chinese Journal of Energetic Materials, 2013, 21(3): 310 -312

Synthesis and Characterization of Hydroxy-terminated Glycidyl Azide-b-(3-azidomethyl-3-methyloxetane) Copolymers

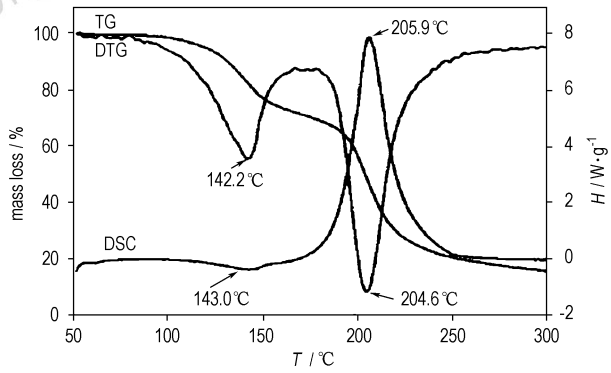


LU Xian-ming, JI Yue-ping, LI Na, MO Hong-chang, LI Lei, YAO Yi-lun, XING Ying

Chinese Journal of Energetic Materials, **2013**, **21**(**3**): **313 -318**

A novel azide binder glycidyl azide-b-(3-azidomethyl-3-methyl oxetane) copolymers (P(GA-b-AMMO)) were synthesized by polymerization of AMMO, using trifunctionality glycidyl azide polymer (TGAP) as a macromolecular initiator. The appropriate polymerization conditions were as fllow: $n(BF_3 \cdot OEt_2)/n(TGAP)/n(AMMO)$ =1.35/1/12 ~16, the polymerization temperature was 0 -3 ℃.

Thermal Decomposition Characteristics of LS-Based Propellant



HU Song-qi, CHEN Jing, WU Su-li, DENG Zhe

Chinese Journal of Energetic Materials, **2013**, **21**(**3**): **319 -324**

Thermal decomposition characteristics of several solid propellants (lead styphnate, nitrocellulose, lead styphnate, dibasic lead stearate) were studied by TG and DSC.

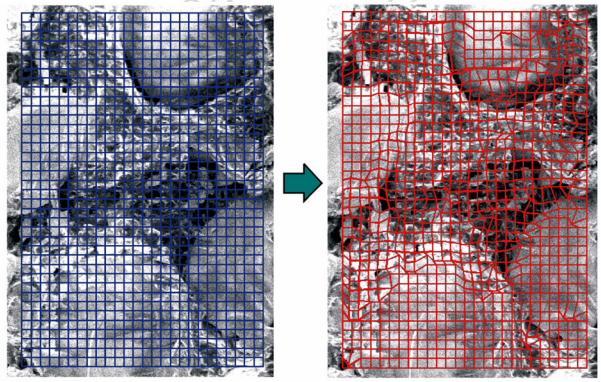
Nonlinear Constitutive Relation of HTPB Propellant Based on the First Law of Thermodynamics

GONG Jian-liang, LIU Pei-jin, LI Qiang

Chinese Journal of Energetic Materials,2013,21(3): 325 -329

The constitutive of HTPB propellant was obtained by the algorithms. The means of numerical simulation shows that the mechanical behavior of HTPB propellant is consisted of the initial linear elastic relationship and nonlinear constitutive relationship with interfacial debonding. With the increase of particle volume fraction, the strength and overall modulus of HTPB are both improved, but interface debonding is more likely to occur.

Mesoscale Failure in Solid Propellant by Coupling SEM and Digital Image Correlation Method

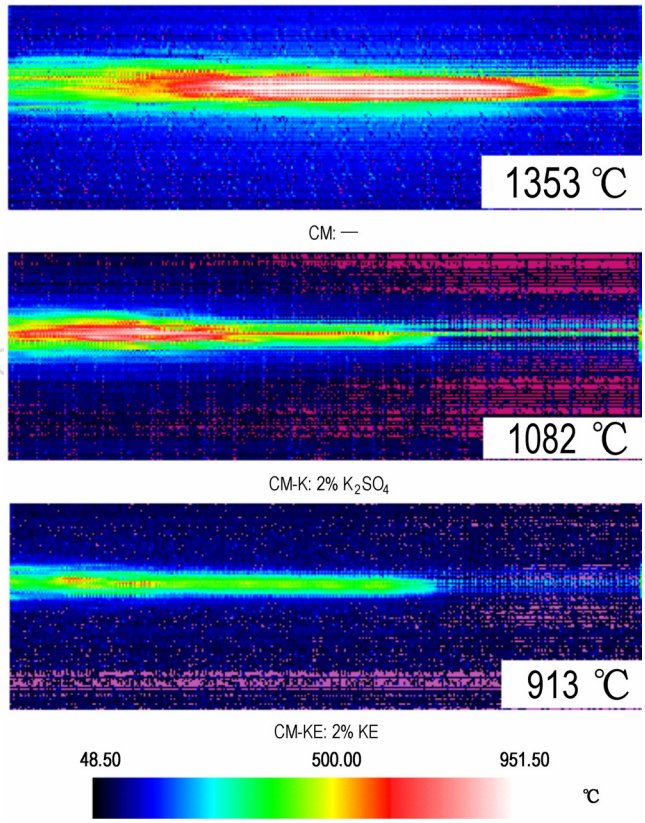


LI Gao-chun, LIU Zhu-qing, ZHANG Xuan, QIU Xin, SUI Yu-tang

Chinese Journal of Energetic Materials,2013,21(3): 330 -333

The obtained microscopy images under different phase was analyzed by Digital Image Correlation Method(DICM). The typical process of digital image correlation with defined measurement grids and deformed measurement grids.

Influence of Energetic Potassium Salt as Eliminated-flame Additive on Performance of Nitramine Modified Double Base Propellant

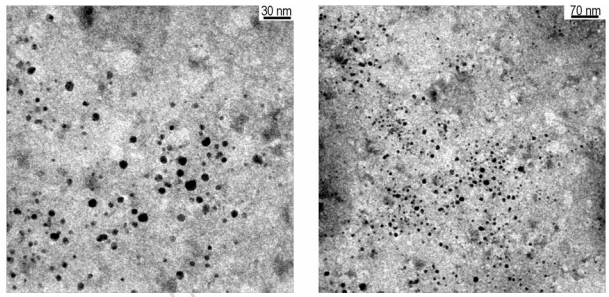


QI Xiao-fei, LI Jun-qiang, ZHANG Xiao-hong, LI Xiao-jiang, ZHANG Wei, LIU Peng

Chinese Journal of Energetic Materials,2013,21(3): 334 -338

The influence on the performance of nitramine modified double base propellant with KE (a nitrite) and K_2SO_4 as eliminated-flame additive was studied.

Solution Phase Chemical Reduction Synthesis and Characterization of Aluminum Nanoparticles

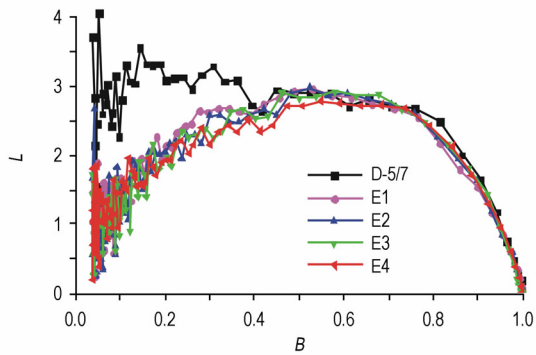


Alumnium nanoparticles (AlNPs) were synthesized by the solution-phase chemical reduction method. Its granularity, distribution, morphology, size, component, structure and activity were studied by laser particle size analyzer (LPSA), transmission electron microscopy (TEM), X-ray photoelectron spectroscopy (EDS), X-ray diffraction (XRD), Fourier transform infrared spectrum (FT-IR) and thermogravimetry (TG).

LIANG Xiao-lei, LIU Cai-lin, REN Xian-yan, YANG Hai-jun, WANG Mian, WANG Yong, RAN Juan-ping

Chinese Journal of Energetic Materials, **2013**, **21**(3): **339 -342**

Effect of Nitroglycerine Content on Combustion Progressivity of Modified Single Base Propellant

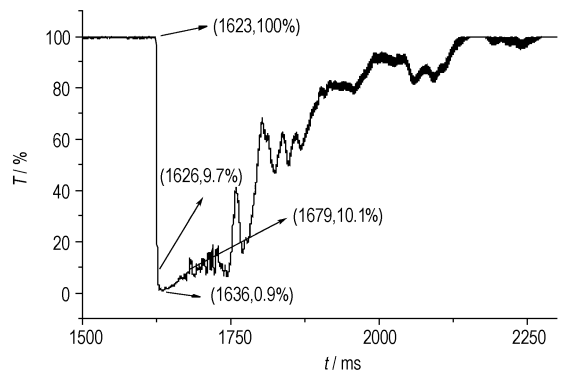


The characteristics of *p-t* and *L-B* curves of modified single base propellant with different content of nitroglycerine were analyzed, and the influence law of added amount of nitroglycerine on the combustion property obtained.

YAO Yue-juan, LIU Shao-wu, WANG Feng, YU Hui-fang, LI Da, CHEN Teng

Chinese Journal of Energetic Materials, **2013**, **21**(3): **343 -346**

A Measurement Method for Gun Muzzle Smoke Aggregates of Propellants

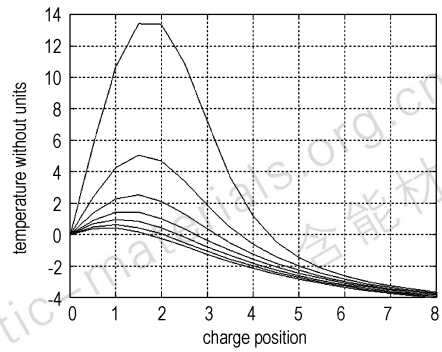


The concentration and aggregate of muzzle smoke was characterized with the visible light transmisttance in an open system. A calculation equation of character smoke capacity was derived.

ZHAO Bao-ming, ZHAO Hong-li, YANG Li-xia, LI Xian, CHEN Xiao-ming, ZHAO Ying, ZHANG Heng, JING Jian-wei, LIU Lai-dong

Chinese Journal of Energetic Materials, **2013**, **21**(3): **347 -350**

Numerical Calculation of Temperature Character of Main Change in the Powered Initiators Ignition Process

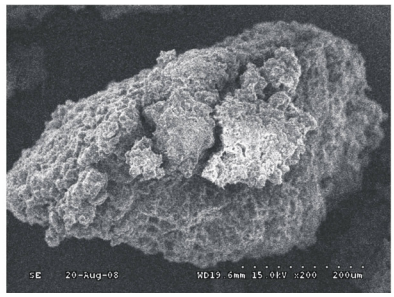


JIANG Xin-guang, WANG Hai-nan, LIU Wei-qi, JIANG Zhi-bao, LIU Yu-zi

Chinese Journal of Energetic Materials,2013,21(3): 351 -356

Based on thermal ignition theory, the temperature distribution curves in main charge at different time and different positions are obtained by numerical integral when the ignition source has different temperatures.

Preparation and Performance of Low Detonation Velocity Emulsion Explosives Used in Explosive Welding



HUANG Wen-yao, ZHANG Kai, WU Hong-bo, HU Xin, WANG Dao-yang,SHEN Xia-xia, YU Yan

Chinese Journal of Energetic Materials,2013,21(3): 357 -362

Emulsion matrix, foam and carbonate mineral powder were mixed to prepare a kind of emulsion explosive with low detonation velocity. The particles internal of explosive have interspaces, particle shapes are irregular, and have a good fluxion property. The explosive is very safe, which can satisfy the requirement of explosive welding of metal plate.

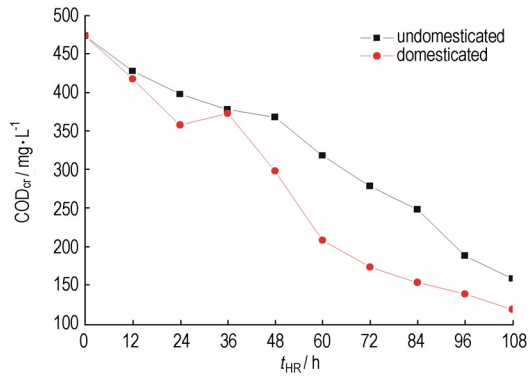
Recycling Use of Waste Acids in Preparation of 3-Nitro-1,2,4-triazol-5-one

HUANG Xin-ping, CHANG Pei, WANG Bo-zhou, LI Pu-rui, WANG Min-chang, FAN Xue-zhong, FENG Hong-lian

Chinese Journal of Energetic Materials,2013,21(3): 363 -366

In novel preparation of NTO, nitric filter liquid can be reused for ten times with an average yield of 82% and purity of 99.9%, the addition of nitric acid can be reduced 67.6%.

Waste-water Treatment of Diazodinitrophenel by White Rot Fungus-peat



WANG Hui-e, SUN Ji-lin, YAN Shi-long , ZHANG Xue-cai

Chinese Journal of Energetic Materials,2013,21(3): 367 -371

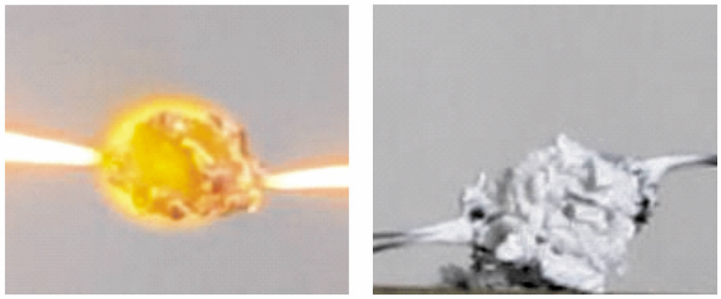
A biochemical and physical method to deal with treatment of diazodinitrophenol (DDNP) waste-water with white-rot fungi-peat is presented.

Progress on Crystal Damage in Pressed Polymer Bonded Explosives

LIU Jia-hui, LIU Shi-jun, HUANG Ming, LI Hong-zhen, NIE Fu-de
Chinese Journal of Energetic Materials,2013,21(3): 372 -378

Evolution of crystal microstructure under mechanical loading, characterization technology and the change of the macroscopical properties of PBX after pressed were summarized.

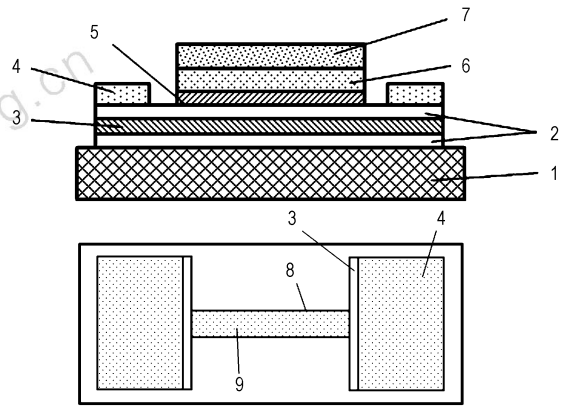
Progress in Combustion Characteristics of Mg Particles in Oxidation Gases



HUANG Xu, XIA Zhi-xun, HUANG Li-ya, HU Jian-xin
Chinese Journal of Energetic Materials,2013,21(3): 379 -386

The combustion characteristics of magnesium particle at different atmospheres were summarized, introduced and reviewed with 39 references.

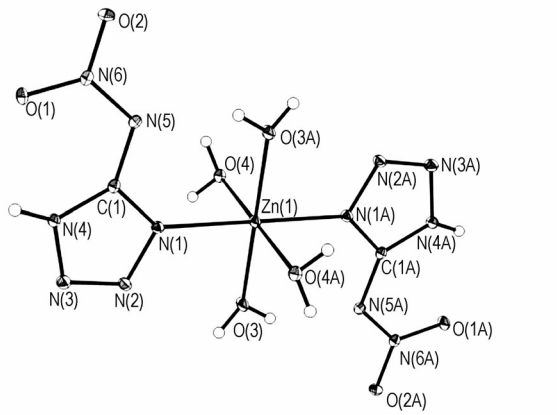
Development of Composite Semiconductor Bridge Technique for Electrical-explosive Device



LI Yong, ZHOU Bin, QIN Zhi-chun, SHEN Rui-qi, CHEN Fei, DU Pei-kang, JIA Xin, WEN Lei-ming, ZHANG Jun-de
Chinese Journal of Energetic Materials,2013,21(3): 387 -393

The research progress, advantages and weaknesses of the composite semiconductor bridge electrical-explosive device were reviewed. In order to increase the ignition energy of semiconductor bridge to provide a viable basis and reference, the structure features, reactive material, ignition conditions and output performance of the multi-layer composite film ignition bridge were comparatively analyzed.

Crystal Structure of a Novel Nitrogen-rich Energetic Compound Zn(5-NATZ)$_2$(H$_2$O)$_4$

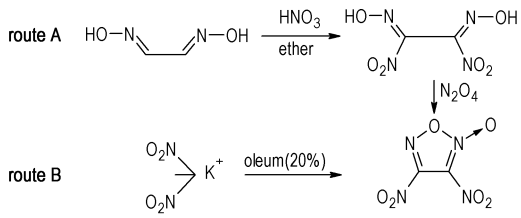


WU Jin-ting, ZHANG Jian-guo, LI Jing-yu, ZHANG Tong-lai, ZHOU Zun-ning, YANG Li

***Chinese Journal of Energetic Materials*,2013,21(3): 394 -395**

Zn(5-NATZ)$_2$(H$_2$O)$_4$ was synthesized by reacting 5-nitraminotetrazolate(5-NATZ) with Zn(NO$_3$)$_2$·6H$_2$O. The single crystal was determined by X-ray single crystal diffraction technology.

Synthesis of 3,4-Dinitrofuroxan

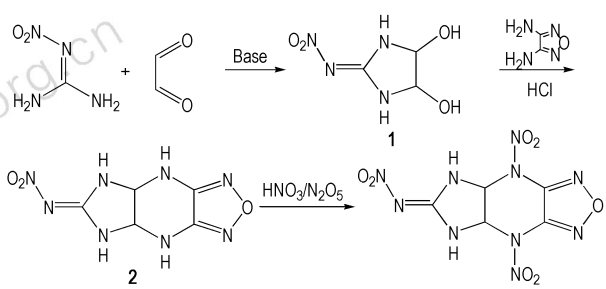


LI Hui, WANG Bo-zhou, LAI Wei-peng, WANG Min-chang, BI Fu-qiang, GE Zhong-xue

***Chinese Journal of Energetic Materials*,2013,21(3): 396 -397**

3,4-Dinitrofuroxan was synthesized from two different routes, and its structure was determined by ^{13}C NMR, ^{14}N NMR, ^{15}N NMR, IR, MS as well as elemental analysis.

Synthesis of 6-Nitroimino-4,8-dinitro-5,6,7,8-tetrahydro-4*H*-imidazo[4,5-e]furazano[3,4-b]pyrazine



HUO Huan, WANG Bo-zhou, LIAN Peng, LAI Wei-peng, GE Zhong-xue, ZHANG Ye-gao

***Chinese Journal of Energetic Materials*,2013,21(3): 398 -399**

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