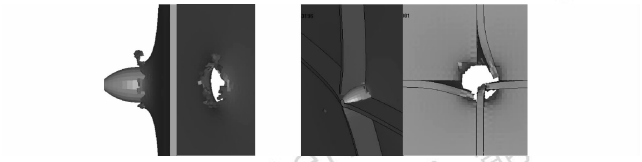
**Numerical Investigation on Perforation of Projectile Impacting Stiffened Plate**



Numerical simulations were conducted to study the failure pattern of target, projectile trajectory and the anti-perforation capability of target with stiffened plates impacted by projectile. Stiffeners enhanced the strength and rigidity of target, changed the whole structure capability and the failure pattern of target.

YANG Shi-quan, TANG Ping, CHEN Yong

*Chinese Journal of Energetic Materials*, 2007, 15(6): 561 – 565

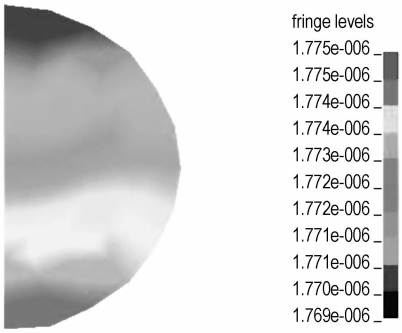
**Preliminary Research on Damage Enhanced Fragment**

The damage performances of a kind of damage enhanced fragment containing Al/PTFE were studied.

HUANG Heng-jian, HUANG Hui , YANG Shi-qing, YANG Pan, ZHANG Tong, XI Yan, LU Xiao-jun

*Chinese Journal of Energetic Materials*, 2007, 15(6): 566 – 569

**Numerical Simulation on Transformation Characteristic of Global Hole in Charge with Loading Rate**

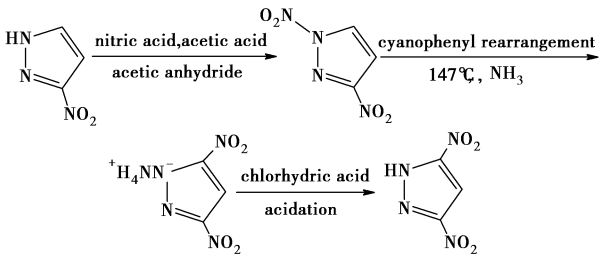



The model of charge hole in warhead was established by ANSYS software, and transformation characteristic of the hole was simulated with solid-liquid coupling method of LS-DYNA.

WEI Ke-zhen, ZHANG Qi

*Chinese Journal of Energetic Materials*, 2007, 15(6): 570 – 573

**Synthesis of 3,5-Dinitropyrazole**




3,5-Dinitropyrazole ammonium salt was synthesized with 3-nitropyrazole asprimary substance by nitration and rearrangement.

WANG Ying-lei, ZHANG Zhi-zhong, WANG Bo-zhou, ZHENG Xiao-dong, ZHOU Yan-shui

*Chinese Journal of Energetic Materials*, 2007, 15(6): 574 – 576

**Synthesis of 3-Amino-4-nitrofurazan by an Improved Method**

ZHANG Jun-qi, ZHANG Wei, ZHU Hui, WANG Chun-hua, WANG You-wei

*Chinese Journal of Energetic Materials*, 2007, 15(6): 577 – 580

3-Amino-4-nitro-furazan (ANF) was synthesized from 3,4-diamino-furazan (DAF) by an improved method. The effects of reaction temperature, reaction time and quantity of catalyst on the conversion of DAF to ANF was studied by orthogonal design, and the optimal reaction conditions were obtained.

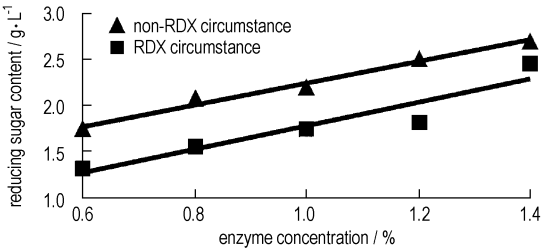
**The Shock Sensitivity of a Recrystallizing RDX**

FENG Xue-song, ZHAO Sheng-xiang, LI Xiao-ping

*Chinese Journal of Energetic Materials*, 2007, 15(6): 581 – 582

The ordinary RDX was recrystallized in dimethyl sulfoxide solvent with Twin-80 crystal modifier to improve its morphology and reduce its sensitivity.

**Enzymatic Hydrolysis of Bacterial Cellulose Under RDX Circumstance**

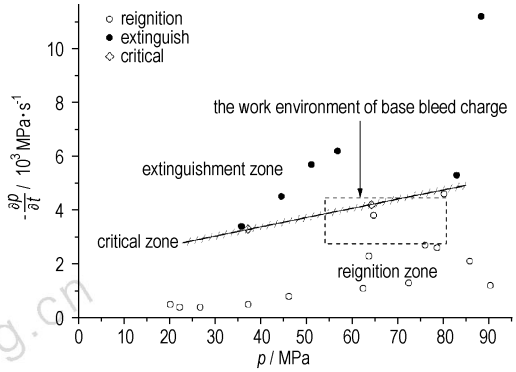



DU Yan-fang, CHEN Yan, NIE Fu-de, PEI Chong-hua

*Chinese Journal of Energetic Materials*, 2007, 15(6): 583 – 586

The enzymatic hydrolysis of bacterial cellulose (BC) was investigated under RDX circumstance. The effects of conditions on enzymatic hydrolysis of BC, such as enzyme concentration, hydrolysis time and temperature were investigated.

**Combustion of Composite Base Bleed Charge Under Rapid Depressurization**

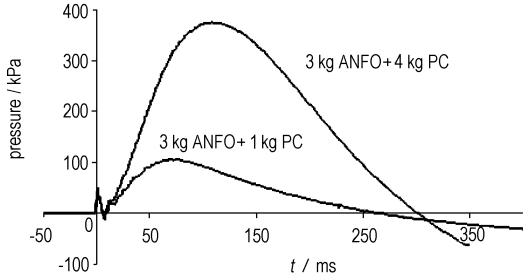



LU Chun-yi, ZHOU Yan-huang, YU Yong-gang

*Chinese Journal of Energetic Materials*, 2007, 15(6): 587 – 591

The characteristics of transient combustion of composite base bleed charge was studied by using a semi-closed bomb. There are three kinds of characteristics of combustion of base bleed charge under rapid depressurization, such as reignition, extinguishment and critical case.

**Explosive Properties of the Mg-Al/PTFE Composition**

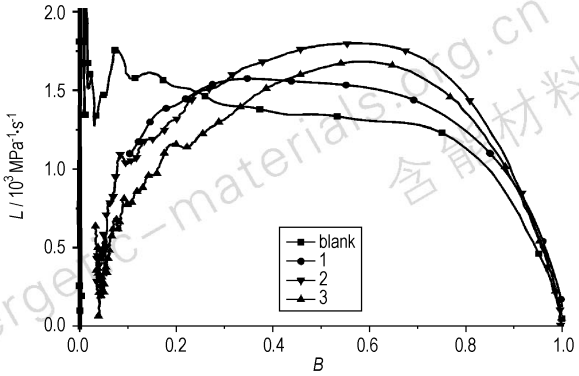



Bogdan ZYGMUNT

*Chinese Journal of Energetic Materials*, 2007, 15(6): 592 – 596

The explosive properties of the pyrotechnic composition consist of fine grade magnesium-aluminium powder (PAM) and highly dispersed polytetrafluorethylene (PTFE) were studied.

**Combustion Properties of the Energy-increased Desensitized Single-base Propellant**

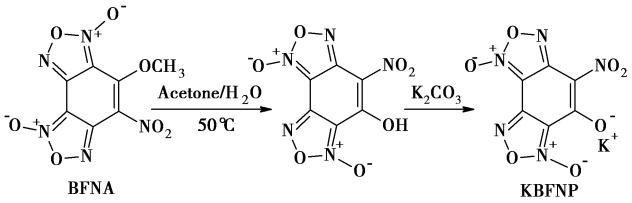



LIANG Yong, WANG Qiong-lin, YU Hui-fang, LIU Shao-wu, ZHANG Yuan-bo, LI Li

*Chinese Journal of Energetic Materials*, 2007, 15(6): 597 – 599

A energy-increased desensitized propellant was obtained by the treatment of nitroglycerine dipping and addition of fire-retar dant polyester materals into 11/7 single-base propellant.

**New Primary Explosive Bis-furoxano-nitrophenol Potassium Salt**




ZHANG Yu-feng, SHENG Di-lun, MA Feng-e, ZHU Ya-hong, CHEN Li-kui, YANG Bin

*Chinese Journal of Energetic Materials*, 2007, 15(6): 600 – 603

New green primary explosive bis-furoxano-nitrophenol potassium salt (KBFNP) were synthesized from bis-uroxano-nitroanisole (BFNA) and potassium carbonate.

**Study on "Test Information Entropy"**

CAI Rui-jiao, LIU Wei-qi, DONG Hai-ping

*Chinese Journal of Energetic Materials*, 2007, 15(6): 604 – 607

Test Information Entropy is put forward to describe randomicity and uncertainty of engineering tests' result. The similarities and differences between Test Information Entropy and usual information entropy are discussed. The mathematical expressions of two kinds of information entropy are given. Two application examples for Test Information Entropy are given.

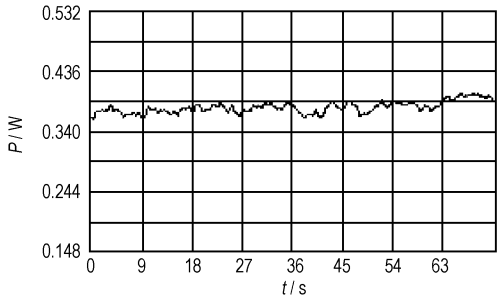
**New Test Design Method with Small Samples for Reliability Assessment of Initiating Explosive Devices**

DONG Hai-ping, CAI Rui-jiao

*Chinese Journal of Energetic Materials*, 2007, 15(6): 608 – 611

The test design plan with small samples for initiating explosive devices was studied. Test information entropy, a new test design method was put forward.

**Extinction Coefficient of Red Phosphorus Smoke Combined with Nanometer Alumina to 10.6 μm Laser Emission**

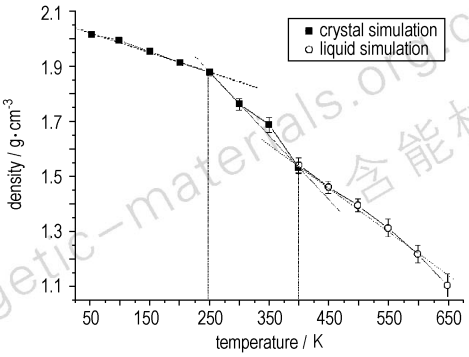



WANG Xuan-yu, PAN Gong-pei

*Chinese Journal of Energetic Materials*, 2007, 15(6): 612 – 615

The extinction coefficients of nanometer alumina aerosols, red phosphorus smoke and their combined smoke to 1.0 W &10.6 μm laser emission were tested in a middle smoke chamber.

**The First Principle Force Field for Energetic Material TNAZ**

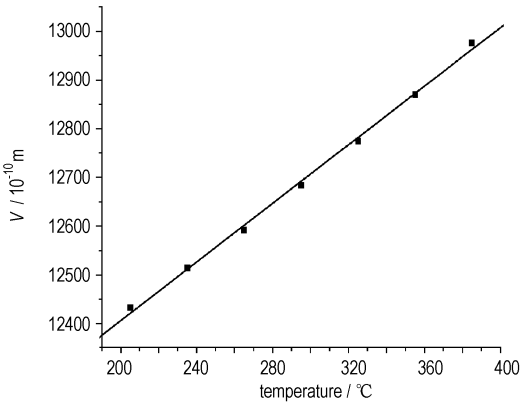



WANG Xi-jun, ZHAO Li-feng, SUN Huai

*Chinese Journal of Energetic Materials*, 2007, 15(6): 616 – 621

The first principle force field for energetic material 1,3,3-trinitroazetidine (TNAZ) was obtained. The properties of TNAZ in gas, solid, and liquid states were validated.

**A MD Simulation Study of the Coefficients of Thermal Expansion for β-HMX Crystal**

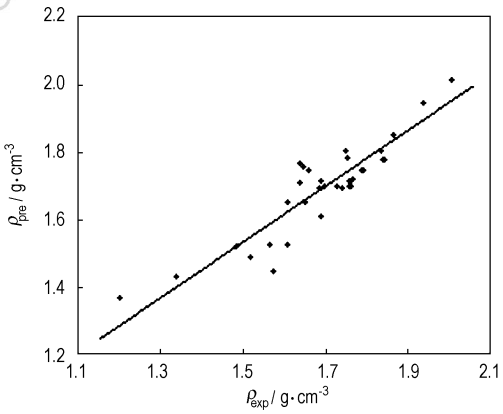



XIAO Ji-jun, HUANG Hui, LI Jin-shan, ZHANG Hang, Ma Xiu-fang, XIAO He-ming

*Chinese Journal of Energetic Materials*, 2007, 15(6): 622 – 625

By MD simulation in NPT ensemble using COMPASS force field under atmospheric pressure and at seven different temperatures from 205 to 385 K, β-HMX crystal linear coefficients of thermal expansion along the crystal *a*, *b*, and *c* directions and its volume coefficients were obtained.

**Prediction of Density of Aromatic Explosives by Quantitative Structure-property Relationships(QSPR) Method**

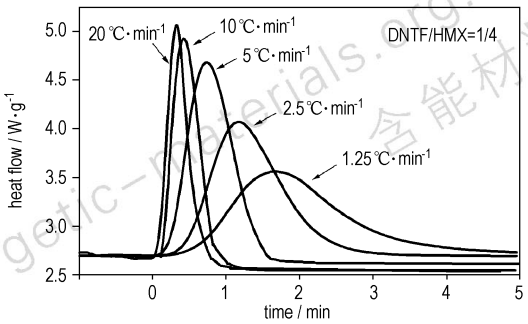



LAI Wei-peng, LIAN Peng, WANG Bo-zhou, JIA Si-yuan, ZHANG Hai-hao, XUE Yong-qiang, PANG Xian-yong

*Chinese Journal of Energetic Materials*, 2007, 15(6): 626 – 628

The relationships between the densities of aromatic explosives and the eight kinds of descriptors were established by QSPR method in Cerius2 program package.

**Non-isothermal Crystallization of DNTF: Ⅰ. Crystallization Kinetics in HMX**

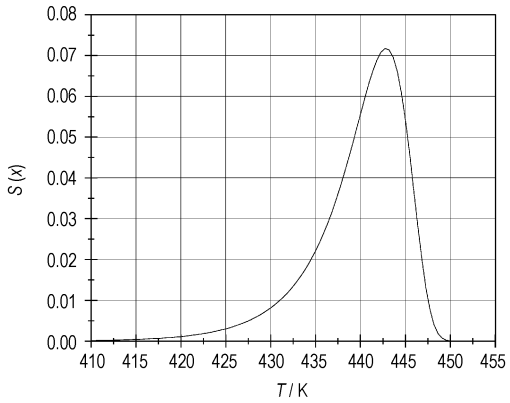



ZHOU Wen-jing, QIN Guang-ming, ZHANG Gao, LIU Zi-ru, HENG Shu-yun, REN Xiao-ning

*Chinese Journal of Energetic Materials*, 2007, 15(6): 629 – 632

The non-isothermal crystallization of DNTF in HMX was studied by differential scanning calorimetry(DSC). Several kinetics models used to investigate the crystallization behavior of DNTF.

**Probability Distribution of Thermal Sensitivity of Energetic Materials**

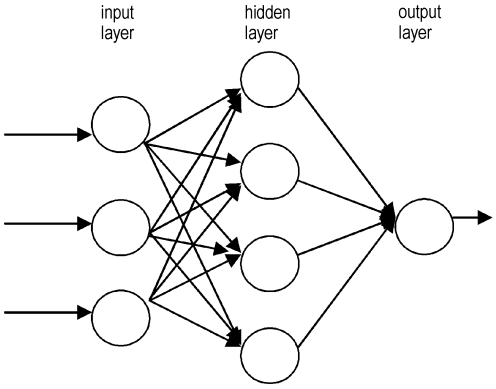



WANG Peng, DU Zhi-ming

*Chinese Journal of Energetic Materials*, 2007, 15(6): 633 – 636

The thermal sensitivity probability density function of energetic materials was worked out, and the thermal safety degree of energetic material was calculated.

**Predicting the Detonating Velocity of Explosives Based on Artificial Neural Network and Hybrid Genetic Algorithm**

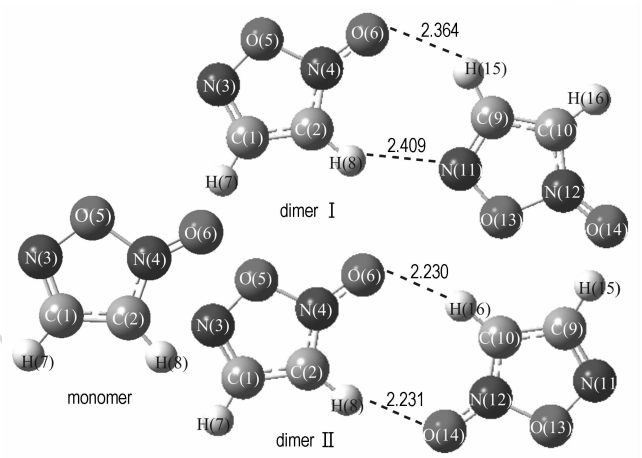



MA Zhong-liang, XU Fang-liang, LIU Hai-yan, ZHANG Wen-cai

*Chinese Journal of Energetic Materials*, 2007, 15(6): 637 – 640

The model predicting the detonation velocity of explosives was founded on the artificial neural network and hybrid genetic algorithm.

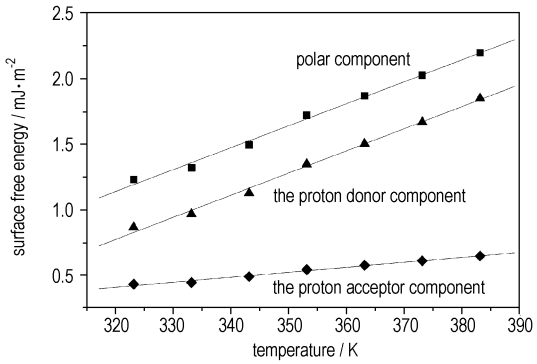
**Theoretical Study on Intermolecular Interaction of Furoxan Dimers**




Aymptotically corrected symmetry-adapted perturbation theory, combined with density functional theory(SAPT(DFT)), was used to study the contributions of intermolecular interaction energy of furoxan. Combining with supermolecular approach, three theoretical models were employed to calculate the intermolecular energies.

CHEN Tian-na, TANG Ye-peng, SONG Hua-jie
*Chinese Journal of Energetic Materials*,2007,15(6): 641 – 645

**Surface Properties of Hydroxyl Terminated Polybutadiene Determined by Inverse Gas Chromatography**




The surface free energy components of HTPB were determined by the inverse gas chromatography (IGC). And the relationship between the temperature and the dispersive, polar, proton donor, and proton acceptor components of HTPB was studied.

DU Mei-na, LUO Yun-jun, YANG Yin, LIU Jing-ru, LÜ Yong
*Chinese Journal of Energetic Materials*,2007,15(6): 646 – 649

**Molecular Simulation on Properties of NEPE Propellant Binders**

Synthia and blends modules in accelrys materials studio were used to simulate steric hindrance parameter, young's modulus, zero-shear viscosity and activation energy for viscous flow, surface energy, Flory-Huggins interaction parameter with nitrate esters for polyester, polyether and polybutadiene type polyurethane binder.

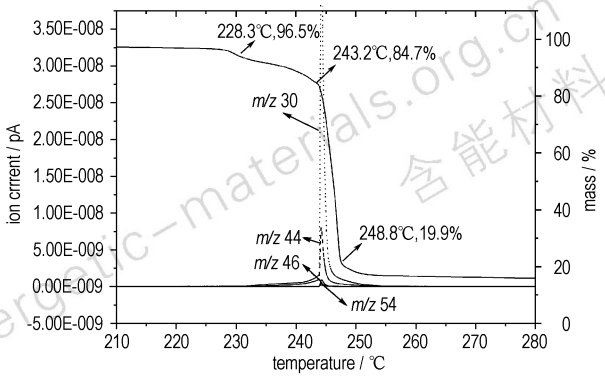
YAO Wei-shang, LI Qian, TAN Hui-min
*Chinese Journal of Energetic Materials*,2007,15(6): 650 – 655

**Crystal Transition of HNIW in Nitrate Acid**

Solubility of hexanitrohexaazaisowurzitane (HNIW) and its changes with temperature in three kinds of different concentrations of nitric acid were measured. The process of crystal transition from $\alpha,\gamma$-HNIW to $\varepsilon$-HNIW in nitrate acid was studied.

JIN Shao-hua, YANG Bo, LIU Jin-quan, LEI Xiang-dong, CHEN Shu-sen
*Chinese Journal of Energetic Materials*,2007,15(6): 656 – 659

**Thermal Decomposition of HNIW by TG-MS**




Thermal decomposition of two kinds of hexanitrohexaazaisowurtzitane (HNIW) particles (230 μm, 40 μm) were studied by TG-MS. The isothermal decomposition residues of the large HNIW particles (230 μm) were researched by FTIR spectra and element analysis.

DONG Lin-mao, LI Xiao-dong, YANG Rong-jie
*Chinese Journal of Energetic Materials*, 2007, 15(6): 660 – 663

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**A Simple Method of Estimating the Standard Hydrous Enthalpy of Cation and Anion**

ZHAO Feng-qi, HU Rong-zu, XU Si-yu, GAO Hong-xu, YI Jian-hua
*Chinese Journal of Energetic Materials*, 2007, 15(6): 664 – 665

A simple formula of estimating the standard hydrous enthalpy of cation and anion, $\Delta_h H_m^\theta(M^{n\pm})$ was presented.

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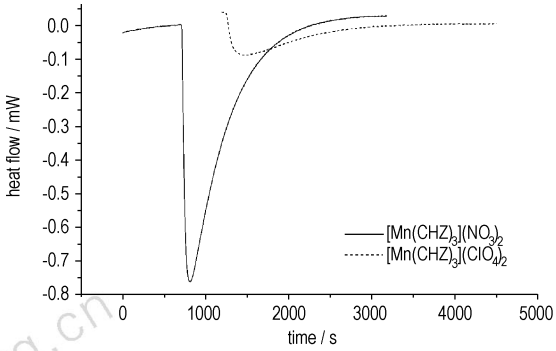
**The Lattice Energy of $[Mn(CHZ)_3](NO_3)_2$ and $[Mn(CHZ)_3](ClO_4)_2$**




Based on the dissolution curve, the enthalpies of solution of $[Mn(CHZ)_3](NO_3)_2$ in deionized water were measured by a Setaram C80 Ⅱ microcalorimeter at 298.15 K. The standard molar enthalpies of solution were obtained to be 91.13 kJ · mol$^{-1}$.

ZHENG Qiu-yu, QIAO Xiao-jing, YANG Li, SHAO Feng-lei
*Chinese Journal of Energetic Materials*, 2007, 15(6): 666 – 669

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**Enhanced-Fenton Process for Degradation of Wastewater Containing Energetic Compounds**

LIU Zuo-hua, ZHOU Xiao-xia, DU Jun, LIU Ren-long, TAO Chang-yuan
*Chinese Journal of Energetic Materials*, 2007, 15(6): 670 – 675

The integrated fenton and fenton-like processes to improve the degradation efficiency were reviewed. Ultrasound and microwave assisted advanced oxidation processes for decontamination of organic wastewater were described.

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**Some Key Techniques of Measuring Propellants and Explosives by Temperature-dependent FTIR**

PAN Qing, ZHENG Lin
*Chinese Journal of Energetic Materials*, 2007, 15(6): 676 – 680

Some experiment, spectra analysis and data processing of measuring propellants and explosives with temperature-dependent FTIR were summarized and reviewed. The methods of these key techniques were presented.

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Executive editor: WANG Yan-xiu; Computer typesetter: ZHANG Gui-hong