

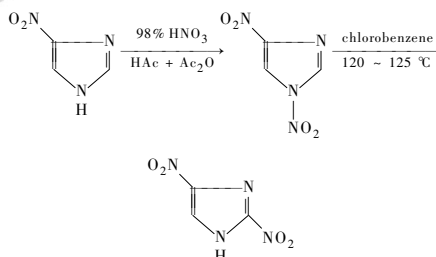
Numerical Simulation of Effect of Initiation Position on Directed Performance of Warhead Fragment

QU Ming, QIAN Li-xin, YANG Yun-bin
Hanneng Cailiao, 2005, 13(3) : 137

Numerical simulation was used to investigate quantificational influence of initiation position on the directed performance of fragments. Different initiation ways were completed, and a preferable initiation position, which makes the fragment achieve optimal performance in directed area, was obtained.

Preparation of 2,4-Dinitroimidazole by Thermal Rearrangement of 1,4-DNI

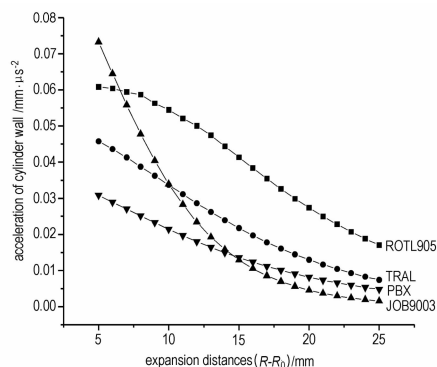
LIU Hui-jun, YANG Lin, CAO Duan-lin
Hanneng Cailiao, 2005, 13(3) : 141



The thermal rearrangement process for preparing 2,4-dinitroimidazole from 1,4-dinitroimidazole was studied.

Study on Work Ability and JWL Equation of State of Two Aluminized Explosives

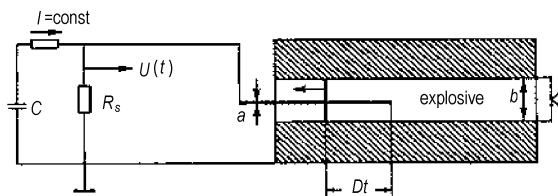
LU Xiao-jun, WANG Rong, HUANG Yi-min,
HE Bi, HAN Dun-xin, CHEN Hong-xia, LU Bin
Hanneng Cailiao, 2005, 13(3) : 144



The work ability of ROTL-905 and TRAL aluminized explosive was studied. Aluminized explosive has strong capacity of accelerating metal. The parameters of JWL equation of state for detonation products of ROTL-905 explosive were calculated.

Experimental Measurement of Conductivity for the Detonation Product

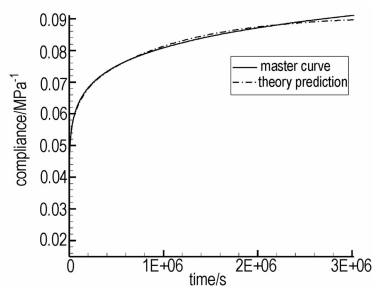
ZHOU Lin, LIAO Ying-qiang, XU Geng-guang
Hanneng Cailiao, 2005, 13(3) : 148



When a resistance connected with the product of detonation by parallel connection, the voltage signal of HMX 30/Al 70/Wax 7 is noted. The results show that the voltage decreases from 0.91 V to 0.18 V within 0.35 μ s, when the electrode and products of detonation are switch on. It explains that the products of detonation possess upper conductivity. The conductivity of products of detonation can be calculated.

The Compressive Creep Behavior of PBX Based on TATB

LI Ming, WEN Mao-ping, HE Qiang,
PANG Hai-yan, JING Shi-ming
Hanneng Cailiao, 2005, 13(3) : 150



Master curve of creep compliance is simulated by Prony series with seven terms and it shows agreeing well with the experimental data.

Effects of the Particle Size of Ink Explosive on the Explosion Transfer Performance

YU Jiang, YANG Zhen-ying, AN Tian
Hanneng Cailiao, 2005, 13(3) : 155

The effects of the particle size and distribution of ink explosive on the critical explosion transfer performance of explosive logic circuit are studied. The smaller the particle size is, the smaller the stable transfer size of ink explosive is and the higher the detonation sensitivity is.

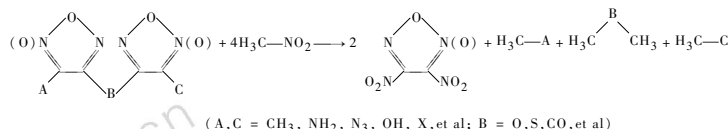
Study on the Stability of Keeping Silicon Type Delay Composition in Storage and of Silicon Powder Surface

WANG Zhi-xin, LI Guo-xin,
LAO Yun-liang, LI Hao
Hanneng Cailiao, 2005, 13(3) : 158

The thermal stability and kinetic parameters of the exothermic decomposition reaction of a new plastic bonded explosive PBX-HKF, composed of main explosive (HMX and potassium picrate), plasticizer and binder, were studied by an accelerating rate calorimeter.

Calculation for Normal Heat of Formation of Dinitro-polyfuran Series in Gas State

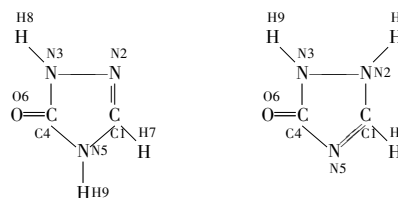
ZHANG Chao-yan, SHU Yuan-jie, HUANG Yi-gang,
DONG Hai-shan, WANG Xin-feng
Hanneng Cailiao, 2005, 13(3) : 162



By calculating the normal heat of conformation (HOF) of dinitro-polyfuran series in gas state, an efficient method to calculate the HOF of bigger molecules was obtained (the relative errors are below 7% vs. the value of experiments). The method includes three processes and can be used in other systems.

Theoretical Study on the Structure and Properties of 1,2,4-triazol-5-one

MA Hai-xia, XIAO He-ming,
SONG Ji-rong, HU Rong-zu, WEN Zhen-yi
Hanneng Cailiao, 2005, 13(3) : 166



Two isomers of 1,2,4-triazol-5-one: 1,2,4-trihydro-1,2,4-triazol-5-one (I) and 2,3,4-trihydro-1,2,4-triazol-5-one (II) were fully optimized. The geometry, electron structure, net charges of atoms and vibration spectroscopic properties were calculated. The calculated result shows that compound I was more stable than II which is consistent with the experimental results.

Mechanical Properties of the Aviation Kerosene Gels with Hydroxypropyl Cellulose as a Gelator

LIU Kai-qiang, CHEN Tian,

WANG Ning-fei, FANG Yu

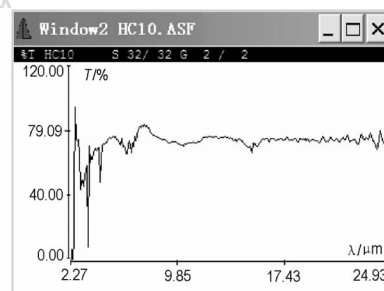
Hanneng Cailiao, 2005, 13(3): 169

Aviation kerosene can be gelled by hydroxypropyl cellulose in the presence of suitable surfactants and other additives. Furthermore, the mechanical properties of the gels can be improved by optimizing the formulation of the gelation system. As an example, the figure shows that the yield stress of the gel can be improved by increasing the concentration of added surfactant.

New Type of Anti-infrared Smoke Agent Based upon Halogenated Organic Compound

WANG Xuan-yu, PAN Gong-pei

Hanneng Cailiao, 2005, 13(3): 173



In a medium-sized smoke chamber, the anti-infrared characteristics of the new HC smokes were tested. The typical thermal images of the infrared object screened by the smoke were given and the Fourier transform infrared spectra were listed.

Molecular Recognition of β -Cyclodextrin to TO and NTO by MALDI-TOF-MS Mass Spectrometry

ZHANG Min, SHI Zhen, BAI Ying-juan

Hanneng Cailiao, 2005, 13(3): 176

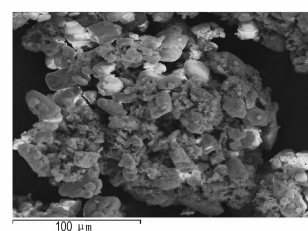
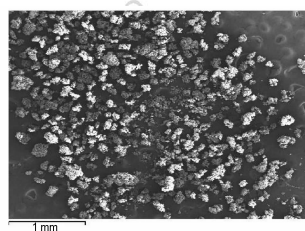
The molecular recognition of β -cyclodextrin to NTO and TO respectively was studied by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF-MS). The effects of different matrixes and concentrations on mass spectra were investigated.

Preparation of Igniter Mixture by Solvent-nonsolvent Method

YI Nai-rong, HOU Yu-ti, SHI Chun-hong,

Lü Qiao-li, MA You-lin

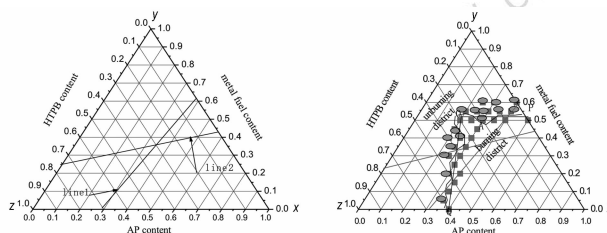
Hanneng Cailiao, 2005, 13(3): 179



The igniter mixture was prepared by solvent-nonsolvent method. The SEM photos and DSC curves showed the igniter mixture prepared by the method were nearly spherical. The flowability of the granules and the thermal stability were improved.

Preliminary Optimization Formulation of Fuel-rich Solid Propellant Based on Boron

WANG Ying-hong, XIAO Xiu-you,
QING Shun, LI Jin-xian
Hanneng Cailiao, 2005, 13(3) : 182



Considering of the technologic characteristic, combustion and energy performances of the fuel-rich propellant based on boron, the adjustive distinct of the combustion performance is given in the paper.

Research on the Surface Coating of Superfine Boron Particles with PBT

ZHANG Qiong-fang, ZHANG Jiao-qiang,
GUO Ji-ying, PANG Wei-qiang, KOU Kai-chang
Hanneng Cailiao, 2005, 13(3) : 185

Through surface coating of boron particles with GAP, TDI, AP, AP/KP etc. , the surface characteristics of boron particles was improved and the combustion efficiency of boron-based propellant was increased.

Study on Burning Rate Measurement of Propellant at High Pressure by Closed Burner Method

HU Song-qi, LI Bao-xuan,
LI Feng-chun, LIU Hong-cheng
Hanneng Cailiao, 2005, 13(3) : 189

The principle of closed burner method is introduced in this paper, and the influences of some facts on accuracy of measurement results are analyzed, and the heat-loss is modified by using of experiment.

Progress in Diaminoazofurazan and Diaminoazoxyfurazan

LI Hong-zhen, HUANG Ming, HUANG Yi-gang,
DONG Hai-shan, LI Jin-shan
Hanneng Cailiao, 2005, 13(3) : 192

The progress in the studies on the synthesis, physical and chemical property, explosion performance, sensitivity as well as thermal property of diaminoazofurazan and diaminoazoxyfurazan is reviewed.

Progress in Synthesis and Properties of Nitrogen-rich Compounds

WANG Hong-she, DU Zhi-ming
Hanneng Cailiao, 2005, 13(3) : 196

Nitrogen-rich compounds are promising materials for gas generating pyrotechnic composition. The synthesis and properties of some nitrogen-rich compounds with high nitrogen content, good thermal stability and high formation enthalpy on the basis of tetrazole and tetrazine structures are reviewed.

Progress in Silicone Rubber Inhibitor

CHEN Guo-hui, CHANG Hai
Hanneng Cailiao, 2005, 13(3) : 200

The recent development of researches on silicone rubber inhibitor's mechanical, antiablation and bonding property is reviewed.