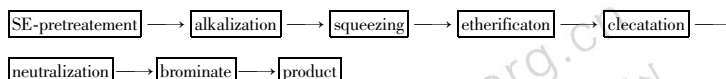


Synthesis of Novel Thermoplastic Energetic Bonder Intermediate Based on Novel Cellulose

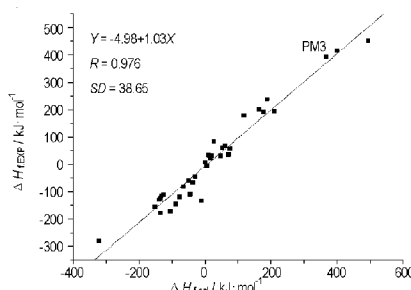
XU Kun, SHAO Zi-qiang, WANG Fei-jun,
WANG Wen-jun, WANG Ji-xun, TAN Hui-min
Hanneng Cailiao, 2004, 12(2) : 65



Novel thermoplastic energetic bonder intermediate was synthesized based on cotton cellulose pretreated by steam explosion. The process of preparing NGEAC included the following steps: (a) alkalization of the treated cellulose; (b) etherification of the alkali cellulose; (c) neutralization and brominate of the water-soluble cellulose ether. The products (thermoplastic energetic bonder intermediates) were characterized and analyzed by FTIR and X-ray diffraction. The synthesis was optimized.

Semi-empirical MO Investigation on Heats of Formation for Energetic Compounds

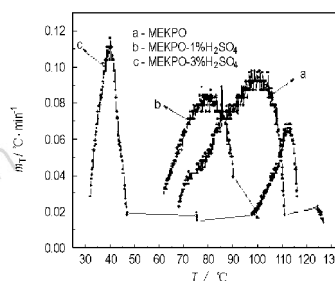
QIU Ling, JU Xue-hai, XIAO He-ming
Hanneng Cailiao, 2004, 12(2) : 69



The fully optimized geometries and heats of formation for 66 energetic molecules have been calculated by means of four semi-empirical MO methods (PM3, AM1, MNDO and MINDO/3). Compared with those experimental values, it is found that PM3 is the best for predicting heats of formation for energetic materials.

Study on the Thermal Stability of Methyl Ethyl Ketone Peroxide

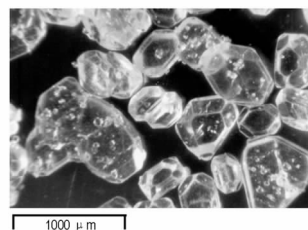
QILE Mu-ge, WANG Pei-lan
Hanneng Cailiao, 2004, 12(2) : 74



The thermal stability and kinetic parameters of the exothermic decomposition reaction of methyl ethyl ketone peroxide and its mixture with sulfuric acid have been studied by an accelerating rate calorimeter.

Analysis of Mechanical Properties of RDX Crystals Obtained from Different Solvents

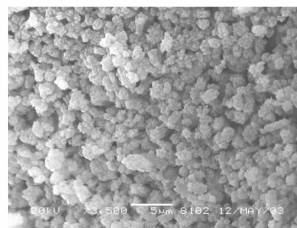
YU Xian-han, SIMA Tian-long, SUN Kuan-de
Hanneng Cailiao, 2004, 12(2) : 78



RDX was crystallized in different solvents, and its properties of crystalline mechanics were different. It is approved that there are obvious differences of its pressure-bearing and mechanical strength by the pressure loaded coil.

Study on Hygroscopicity of the Coated Ammonium Nitrate by Precipitation Polymerization

YUE Jin-wen, DENG Jian-ru
Hanneng Cailiao, 2004, 12(2) : 82



Precipitation polymerization of acrylonitrile in cyclohexane was carried out to encapsulate ammonium nitrate. The hygroscopicity and caking tendency of AN was markedly reduced compared to that of uncoated.

Experimental Study on the Thermal Shock Damage of Explosive by Ultrasonic Testing

ZHANG Wei-bin, TIAN Yong, WEN Mao-ping,
HAO Ying
Hanneng Cailiao, 2004, 12(2) : 85

The digital ultrasonic testing technique was used to estimate the JOB-9003 explosives' damage and its evolution course under thermal shock. Correlation between the damage accumulation degree of JOB-9003 explosives and ultrasonic gain was found. The ultrasonic testing method can be used to study the dynamic responses of explosives to different loading conditions.

GC-MS Analysis of Unsymmetrical Dimethylhydrazine and its Initial Oxidation Products

WANG Xuan-jun, LIU Xiang-xuan, GUO He-jun,
LI Zheng-li
Hanneng Cailiao, 2004, 12(2) : 89

The unsymmetrical dimethylhydrazine (UDMH) and initial oxidation products were characterized by GC-MS technique. The fragmentation pathway of initial oxidation products of UDMH was proposed.

Preparation, Properties and Applications of Potassium Picrate

SHENG Di-lun, MA Feng'e
Hanneng Cailiao, 2004, 12(2) : 93



The particulate potassium picrate (KP) had been synthesized by adding a non-ionized crystallizing controlling agent in the reaction. The quality specifications of KP and granulating KP with nitrocellulose had been determined. KP is of the high decomposition temperature and the stable combustion rate and is a good heat-resisting ignition composition and high precision delay composition.

Application of Laser Holography to the Atomized Field of Liquid Propellant

LI Li, LI Xian, YANG Li-xia,
JIANG Shu-jun, YANG Yan
Hanneng Cailiao, 2004, 12(2) : 97

The distribution patterns and sizes of the atomized droplets of a liquid propellant were analyzed based on its spraying experiments by a pulsed laser holography. It's proved that laser holography is useful for liquid propellant investigation.

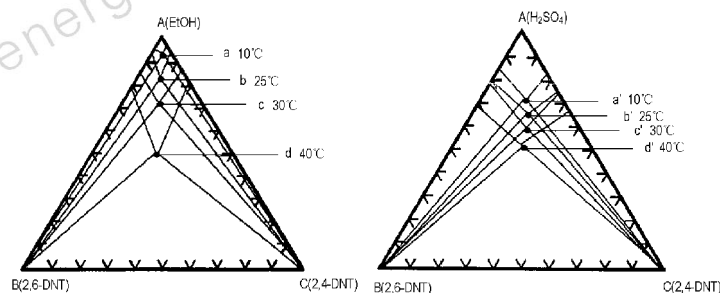
Microwave Desiccation of TATB and RDX

YU Wei-fei, ZENG Gui-yu, NIE Fu-de,
QIN De-xin
Hanneng Cailiao, 2004, 12(2) : 101

Microwave radiation experiments of samples including coarse-grained super-fine and submicron TATB powders and superfine RDX powders are processed. The experiments implied the feasibility that coarse TATB could be dried with microwave instead of normal dryness. Microwave desiccation could be efficiently and economically applied to superfine RDX and submicron TATB without remarkable particles reunion.

Phase Diagram of a Tertiary Mixture Composed of 2,4-DNT, 2,6-DNT and Ethanol (Sulphuric Acid)

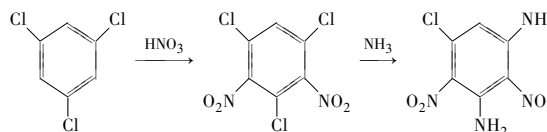
SHI Bai-ru, ZHANG Jun-liang, GUO Yan-wen,
LI Yong, YU Cong-xuan
Hanneng Cailiao, 2004, 12(2) : 104



Phase diagram of a tertiary mixture composed of two components (2,4-DNT and 2,6-DNT) and one liquid component (ethanol of sulphuric acid) was first set up by solubility approach.

Synthesis of 3,5-diamino-2,4-dinitrochlorobenzene

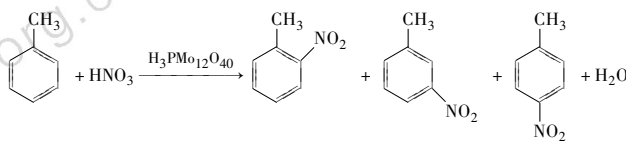
ZHOU Hong-ping, DONG Hai-shan, HAO Ying,
HUANG Ming
Hanneng Cailiao, 2004, 12(2) : 107



3,5-diamino-2,4-dinitrochlorobenzene (DADNCB) was synthesized using sym-trichlorobenzene as starting material. The structure of DADNCB was identified by FT-IR, NMR, MS and element analysis. Its surface shape and melting point were also characterized.

Selective Nitration of Toluene with Nitric Acid in the Presence of Phosphomolybdic Acid Catalysts

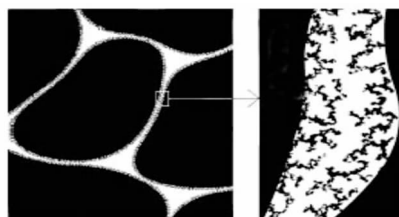
CHENG Guang-bin, SHI Chun-ming, PENG Xin-hua,
Lü Chun-xu
Hanneng Cailiao, 2004, 12(2) : 110



Catalyst of phosphomolybdic acid exhibited a fairly good activity and high para-selectivity in the nitration of toluene.

Effect of Nano-SiO₂ on Performance of Complex Carbon Powder Smoke Composition

ZHOU Zun-ning, PAN Gong-pei, GUAN Hua,
ZHU Chen-guang
Hanneng Cailiao, 2004, 12(2) : 113

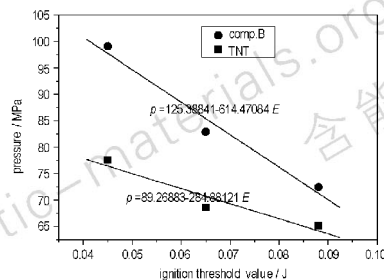


Effects of nano-SiO₂ on the dispersibility and interference performance of complex carbon powder smoke composition were studied. It shows that nano-SiO₂ increases the dispersibility and prolongs the infrared screening time.

Measurement for the Ignition Threshold Value of the Explosive

WANG Shu-ping, WANG Shi-ying, XIAO Wen,
LIU Pei-de

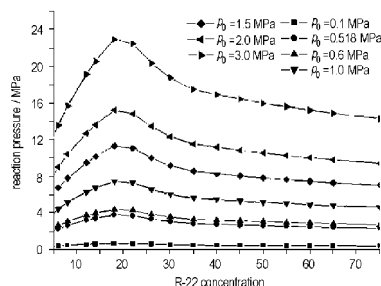
Hanneng Cailiao, 2004, 12(2) : 116



The Ignition threshold value of TNT and Comp. B was measured by using the high-pressure ignition unit. The results prove that ignition threshold value of two kinds of explosive decrease with the pressure increasing.

Numerical Calculation of Detonation Reaction Parameters of CHClF_2 -Air Mixed Gas in Different Initial Pressures

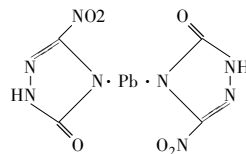
CHEN Lang, ZHANG Guang-hui, FENG Chang-gen
Hanneng Cailiao, 2004, 12(2) : 119



A numerical calculation method was used to calculate the reaction parameters of mixed gas. The reaction temperature and pressure of the mixed gas were been calculated. The reaction temperature and pressure of mixed gas including 20 percent CHClF_2 are the maximal.

Scale-up of Lead Salt of 3-nitro-1,2,4-triazole-5-one

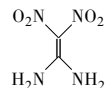
LI Zhan-xiong, TANG Song-qing
Hanneng Cailiao, 2004, 12(2) : 122



The lead salt of 3-nitro-1,2,4-triazole-5-one was synthesized by 100 grams scale with the optimized technique in high yield.

Research Development of 1,1-Diamino-2,2-dinitroethylene

CAI Hua-qiang, SHU Yuan-jie, YU Wei-fei,
ZENG Gui-yu, CHENG Bi-bo
Hanneng Cailiao, 2004, 12(2) : 124



The computational investigation, synthesis methods, characteristics and analysis, physical and chemical properties, explosive properties of FOX-7, and its formulation were reviewed.