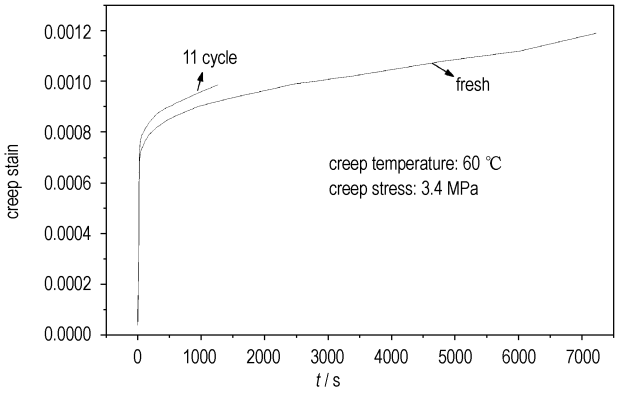
Preparation of PBX by Supercritical Fluid Anti-solvent Method

CHAI Tao, ZHOU Sheng, ZHANG Jing-lin

***Hanneng Cailiao*, 2005, 13(4): 205**

The critical temperature and pressure of fluororubber-ethyl acetate-CO_2 ternary system are investigated by the static visual method at constant volume. On the basis of the results, the preliminary experiment of supercritical fluid (SAS) coating explosives is studied.

Effect of Thermal Cycling Test on the Properties of TATB Based PBX

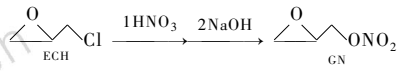


LI Jing-ming, WEN Mao-ping, HUANG Yi-min

***Hanneng Cailiao*, 2005, 13(4): 208**

TATB based PBX samples are thermally cycled at the scope from −40 ℃ to 75 ℃. Their dimensions, mechanical and detonation performance are also tested before and after the thermal cycling test.

One-pot Synthesis of Glycidyl Nitrate

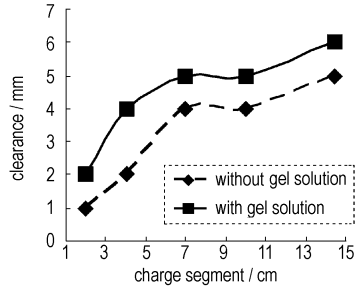


QIU Shao-jun, GAN Xiao-xian, FAN Hui-qing

***Hanneng Cailiao*, 2005, 13(4): 211**

A mild, low cost synthetic method of glycidyl nitrate is developed via one-pot procedure.

Effect of Explosive Charge with Variable Clearance on Detonation Performance

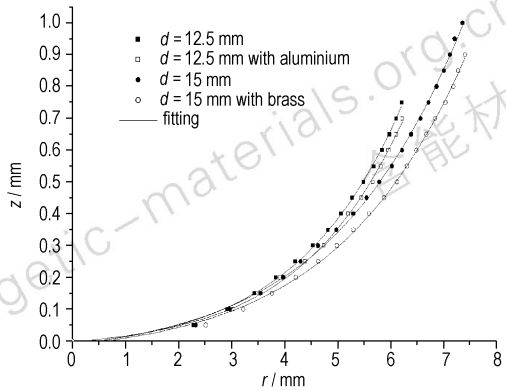


YANG Hui-qun, WANG Ze-shan, WEI Xiao-an

***Hanneng Cailiao*, 2005, 13(4): 214**

The effect of explosive charge with variable clearance and the charge filled with oxidant gel solution into its clearance on detonation performance of the explosive is studied by using ionization method.

Experimental Study on the Non-ideal Detonation of IHE with Confinements



ZHAO Ji-bo, TAN Duo-wang, ZHAO Feng, FANG Qing, HE Zhi, LI Qiang, GAO Ning, LIN Jun

***Hanneng Cailiao*, 2005, 13(4): 217**

With the same diameter of charge, the flat degree of detonation wave is different because of charge confinement. The larger impedance of confinement will make the wave to be flatter.

Numerical Simulation of Warhead Oblique Penetrating Target

ZHANG Qing-ping, CHEN Gang, QU Ming

***Hanneng Cailiao*, 2005, 13(4): 222**

The process of warhead oblique penetrating the target with various impacting velocity, impacting angle, and material property, is calculate and analyzed.

Energy Characteristics of Propellant Containing 3,4-Dinitrofurazanfuroxan (DNTF)

LUO Yang, GAO Hong-xu, ZHAO Feng-qi, CHEN Pei, ZHANG Zhi-zhong, ZHOU Yan-shui, LI Shang-wen

***Hanneng Cailiao*, 2005, 13(4): 225**

The theoretical specific impulse and characteristic velocity of the propellants including hydroxy-terminated polybutadiene propellant, composite modified double base propellant and GAP propellant are increased by DNTF substituting the ingredient RDX or AP.

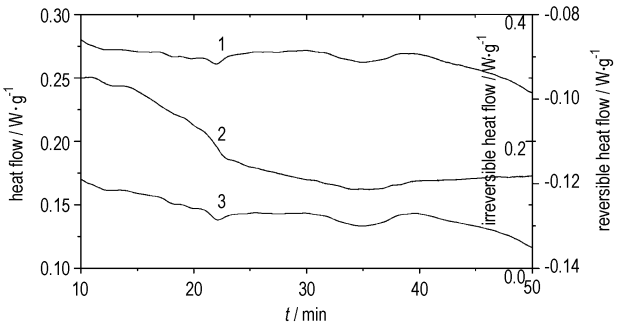
Thermal Decomposition of Phase Stabilized Ammonium Nitrate and Its Mixtures

ZHANG Jie, ZOU Yan-wen

***Hanneng Cailiao*, 2005, 13(4): 229**

Thermal decomposition of phase stabilized ammonium nitrate (AN) and its amalgam are studied by thermal analysis technology. Oxide and salt of metals, hexanitrohexaazaisowurtzitane (HNIW) lower endothermic decomposition temperature of AN to a certain extent, energetic binders accelerate exothermic decomposition process of AN.

Crystalline and Its Growth of F_{2314}

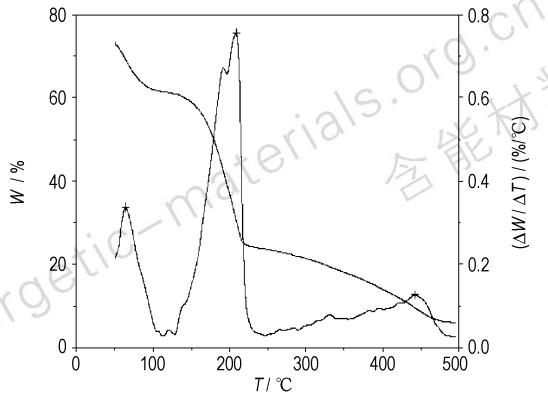


CHENG Ke-mei, SHU Yuan-jie, ZHOU Jian-hua, HAO Ying, ZUO Yu-fen

***Hanneng Cailiao*, 2005, 13(4): 232**

Initial crystalline and crystalline change of F_{2314} at isothermal crystallization and under various aging conditions are studied by DSC and MDSC.

Gelation of Hydrazine Nitrate-hydrazine Hydrate Double Components



The mixture of double components of hydrazine nitrate and hydrazine hydrate are gelled by several different gelling agents: HPAM, CMCNa, Guar gum. The viscosity and absorbing moisture of samples gelled are measured. The TG analysis is performed.

LI Jin-hua, JIN Shao-hua, SHI Yan-shan

Hanneng Cailiao, 2005, 13(4): 235

Dynamics Simulation of Adsorptions of Two Fluorine-polymers on TATB Crystal Surfaces

The adsorption manners of two fluorine-polymers on TATB crystal surfaces are simulated and the structures are optimized by MD (COMPASS force field, NVT) method and smart minimizer method in Discover/Material Studio.

ZHANG Chao-yang, SHU Yuan-jie, ZHAO Xiao-dong, WANG Xin-feng

Hanneng Cailiao, 2005, 13(4): 238

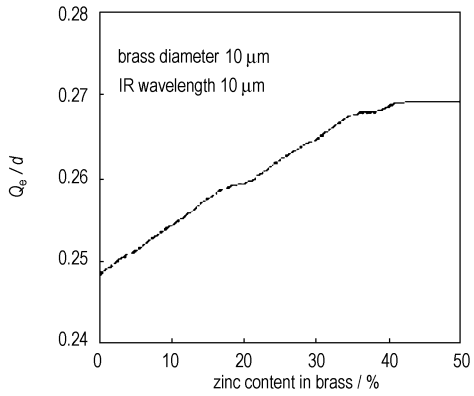
New Manufacturing Technique of Oblate Spherical Propellants for Powder Loads from Waste Double-base Mortar Propellants

A new manufacturing technique is proposed for transferring the waste double-base mortar propellant into oblate spherical propellant used in powder loads. The transferring process comprises grinding waste propellant, dispersing in water, swelling of grinded waste propellant powder in solvent, stirring for spheroidization, washing oblate propellant, screening and drying, obtaining the polished surface of the oblate propellant.

LIN Xiang-yang, PAN Ren-ming, CHENG Xiang-qian, XUE Yao-hui, YUAN Zhi-feng

Hanneng Cailiao, 2005, 13(4): 242

Effect of the Zinc Content on IR Extinction Performance of Brass Powder

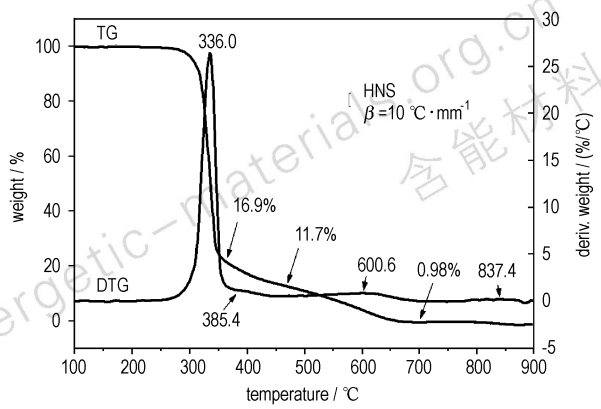


The IR extinction parameter Q_e/d of brass is calculated based on the computable model, taking the brass diameter 10 μm and IR wavelength 10 μm for example, the typical computable results show that the Q_e/d value exist the maximum, the extinction performance is optimal when the zinc content is about 42% in brass.

CHEN Ning, PAN Gong-pei, CHEN Hou-he

Hanneng Cailiao, 2005, 13(4): 246

Thermal Behavior of HNS



CHEN Zhi-qun, ZHENG Xiao-hua, LIU Zi-ru, PAN Qing, WANG Yuan

***Hanneng Cailiao*, 2005, 13(4): 249**

Two stages can be observed during the thermal decomposition of 2,2′,4,4′,6,6′-hexanitro-stilbene (HNS) by using TG-DTG, TG-MS and in-situ thermolysis rapid scan FTIR coupling techniques.

Determination of Octogen in Composite Modified Double-base Propellant by HPLC

NING Yan-li, WANG Ya-xin, GE Yan-ping, TIAN Hong-yuan, MAO Yong-kang

***Hanneng Cailiao*, 2005, 13(4): 252**

Octogen is separated from nitrocellulose by acetonitrile dissolved water separated out in composite modified double-base propellant and determined by HPLC.

Reliability of Safety Index for Methyl Violet Test Examined by Variance Analysis

LU Gui-e, JIANG Jin-yong, LI Xiao-yu, XU Ai-guo

***Hanneng Cailiao*, 2005, 13(4): 255**

The reliability of safety index for methyl violet test is evaluated by variance analysis.

Experimental Study on the Feasibility of Compound Technique of Perforating in Coal Seams

LUO Yong, SHEN Zhao-wu

***Hanneng Cailiao*, 2005, 13(4): 257**

The feasibility of the compound technique of perforating in coal seams is analyzed and the experimental effects are satisfactory. The compound technique of perforating and fracturing can be put into rupturing coal seams.

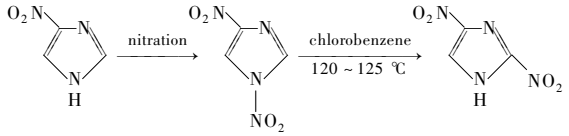
Review on Synthesis, Structure and Performance of Polynitrocubanes

QIU Ling, XU Xiao-juan, XIAO He-ming

***Hanneng Cailiao*, 2005, 13(4): 262**

The synthesis methods, theoretical investigations, physical and chemical properties, and detonation performance of polynitrocubanes are reviewed. Its potential applications are proposed.

Progress in 2,4-Dinitroimidazole



LIU Hui-jun, CAO Duan-lin, LI Yong-xiang, WANG Jian-long

***Hanneng Cailiao*, 2005, 13(4): 269**

The syntheses methods, physical and chemical properties, and detonation performance of 2,4-dinitroimidazole are reviewed.

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