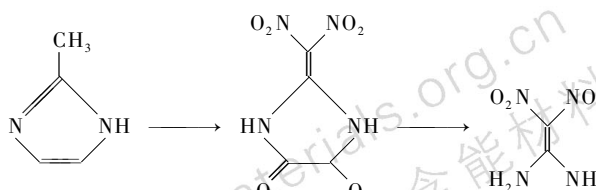


Study on Synthesis of 1,1-Diamino-2,2-Dinitroethylene

CAI Hua-qiang, YU Wei-fei, TIAN Ye, SHU Yuan-jie, ZENG Gui-yu, CHENG Bi-bo

Hanneng Cailiao, 2003, 11(1): 1

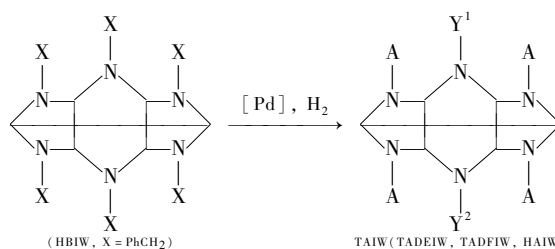


1,1-Diamino-2,2-dinitroethylene was synthesized by amination intermediates which were prepared by nitration of 2-methylimidazole and the route was scaled up properly.

Study on Hydrogenolysis of HBIW and Crystal Structures of the Reaction Products

LIU Jin-quan, WANG Jian-long, HAN Wei-rong, Lü Lian-ying

Hanneng Cailiao, 2003, 11(1): 4



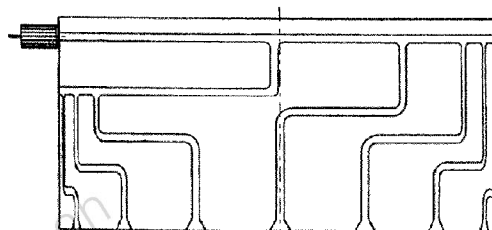
TAIW: A = CH₃CO, Y¹ = Y² = PhCH₂; TADEIW: A = CH₃CO, Y¹ = Y² = C₂H₅; TADFIW: A = CH₃CO, Y¹ = Y² = CHO; HAIW: A = Y¹ = Y² = CH₃CO

Starting from HBIW, five *N*-substituted hexaazaisowurtzitanes were synthesized *via* selective and catalytic hydrogenolysis debenzilation. The structure of the resulting compounds were identified.

Investigation in the Detonation Network Layout

Manfred Held

Hanneng Cailiao, 2003, 11(1): 8

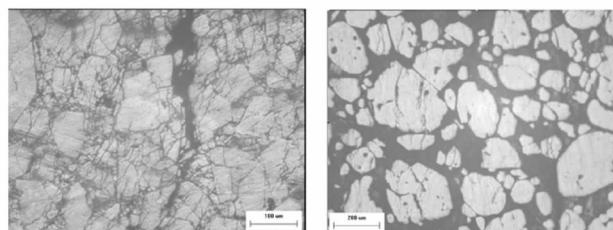


With a V-shaped arrangement of explosive filled grooves the minimum allowed distance as a function of time difference between a detonating trace and neighboring later detonating trace can be continuously measured and analyzed.

Experimental Study on the Impact Damage of Selected Explosives

CHEN Peng-wan, DING Yan-sheng, HE Song-wei, HUANG Feng-lei, CHEN Li

Hanneng Cailiao, 2003, 11(1): 13



A long-pulse low-velocity gas gun with a gas buffer was used to impact cast Comp. B and hot pressed PBXN-5. The microstructure and ultrasonic wave attenuation of damaged explosives were examined. The impact damage characteristics of Comp. B and PBXN-5 were analyzed.

Estimation of the Critical Temperature of Thermal Explosion for Energetic Materials Using Non-isothermal Analysis Method

HU Rong-zu, NING Bin-ke, YU Qing-sen, ZHANG Tong-lai, LIU Rong, YANG Zheng-quan, GAO Sheng-li, ZHAO Hong-an, SHI Qi-zhen
Hanneng Cailiao, 2003, 11(1): 18

Two methods and two calculation formulae for estimating the critical temperature (T_b) of thermal explosion for energetic materials (EMs) under non-isothermal DSC conditions are presented. The calculated values of T_b of nitrocellulose obtained by two methods agree well to each other, indicating that two calculation formulae derived in this work are suitable for estimating the value of T_b of EMs.

Thermal Expansion of TATB-filled Polymeric Material

LI Yu-bin, SHEN Ming, LI Jing-ming
Hanneng Cailiao, 2003, 11(1): 24

Thermal expansion of TATB-filled polymeric materials was related to the size of TATB and the dynamical mechanical properties of polymer. The linear coefficient of thermal expansion increased when the particle size of TATB decreased. The inflexion point in thermal expansion curve of composite corresponded to the apex in $\tan\delta$ - T curve of F-23 copolymer.

Research on Gas Evolution of Silicon Cushion Materials

ZUO Yu-fen, CHENG Ke-mei, WEI Li-yuan, WANG Li-yan, PENG Qiang
Hanneng Cailiao, 2003, 11(1): 28

Gas evolution of silicon cushion materials with different structure was investigated by using TG-IR, GC-MS and solid microextraction. The gas enriching components at 100 °C had similar ingredients of that at 200 °C, although the amount of organic ingredients in a few samples increased at 200 °C.

Study on the Stability of Benzotrifuroxan with Trace Impurities

CHEN Jie, WANG Pei-lan, ZHANG Xiao-yi, QIAN Xin-ming, WANG Xiao-chuan
Hanneng Cailiao, 2003, 11(1): 32

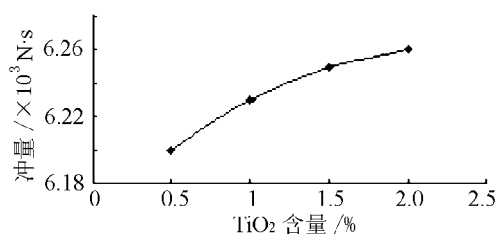
BTF
BTF + TATNB
BTF + TCTNB
BTF + NaN_3

} → Stability

The influence of different impurities on the thermal stability of benzotrifuroxan was studied. Results showed that thermal decomposition of BTF was catalyzed by the heat and decomposition products generated by local thermal decomposition of impurities in BTF, however, this did not alter the decomposition mechanism of BTF.

Effect of Nano-TiO₂ on Igniting Strength of K₁K Ignition Mixture

QIN Zhi-chun, CHEN Xi-wu, ZHOU Bin, ZHENG Gui-fu, TIAN Gui-rong, ZHU Feng-chun, LI Qin-hua, HOU Su-juan, XU Zhen-xiang
Hanneng Cailiao, 2003, 11(1): 37

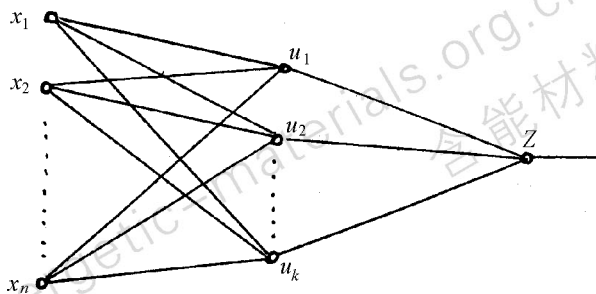


The results of detonator output show that nano-TiO₂ can increase igniting strength of K₁K and the igniting strength increases with the nano-TiO₂ content in K₁K.

**Possibility of Little Electric Current
Nondestructive Inspect for EED**

HU Xue-xian

Hanneng Cailiao, 2003, 11(1) : 40



This paper introduced the possibility of little electric current nondestructive inspect for EED, as illustrated by the algorithm of neural networks.

**Preparation of Low-density Polyurethane Foam
Explosive by Ultrasonic Technology**

YAN Ji-sheng, WEI Tian-yu, DU Yong,
ZHANG Bo, YU Xian-han

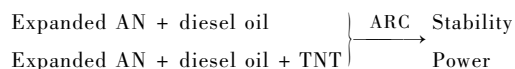
Hanneng Cailiao, 2003, 11(1) : 43

The low-density polyurethane foam explosive with density $0.04 \sim 0.15 \text{ g} \cdot \text{cm}^{-3}$ was prepared by ultrasonic technology, and the explosion characteristics were determined. Factors which affected density of polyurethane foam explosive were reviewed.

**Study on Adiabatic Decomposition of Expanded
AN-diesel Oil Explosive and Expanded
AN-trinitrotoluene-diesel Oil Explosive**

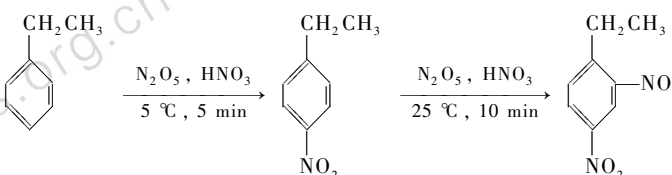
ZHU Hua-qiao, QIAN Xin-ming, FU Zhi-min

Hanneng Cailiao, 2003, 11(1) : 46



Adiabatic stability of expanded AN-diesel oil explosives and expanded AN-trinitrotoluene-diesel oil explosives were tested by Accelerating Rate Calorimeter (ARC). Results showed that after adding TNT to the expanded AN-diesel oil explosive, its stability decreased and the induction time reduced greatly, while the exothermic heat increased greatly, and blast energy and power also increased sharply.

Study and Progress of Clean Nitration Technology

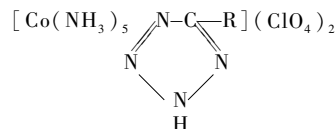


REN Yong-li, WANG Li, MI Zhen-tao

Hanneng Cailiao, 2003, 11(1) : 50

Some new clean processes used for nitration of aromatic hydrocarbon are reviewed. Without concentrated sulfuric acid, all these processes are environmental friendly with high atom economy.

**Cobaltic Tetrazol Coordination Compounds
Available for Laser Initiation**



JIN Shao-hua, SONG Quan-cai

Hanneng Cailiao, 2003, 11(1) : 55

Energetic coordination compounds can be available for laser initiation. This paper introduced several cobaltic tetrazol coordination compounds in detail.