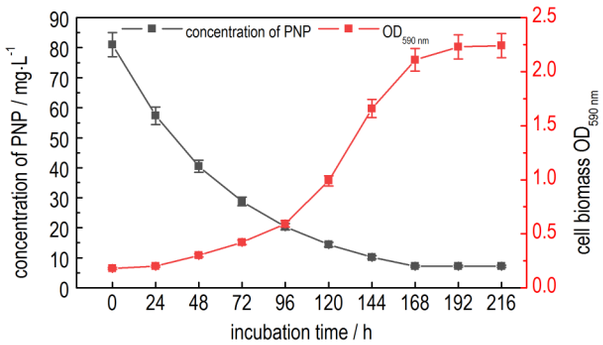
Degradation of *p*-nitrophenol by *Rhodobacter Spheroides* and Optimization of Response Surface Methodology

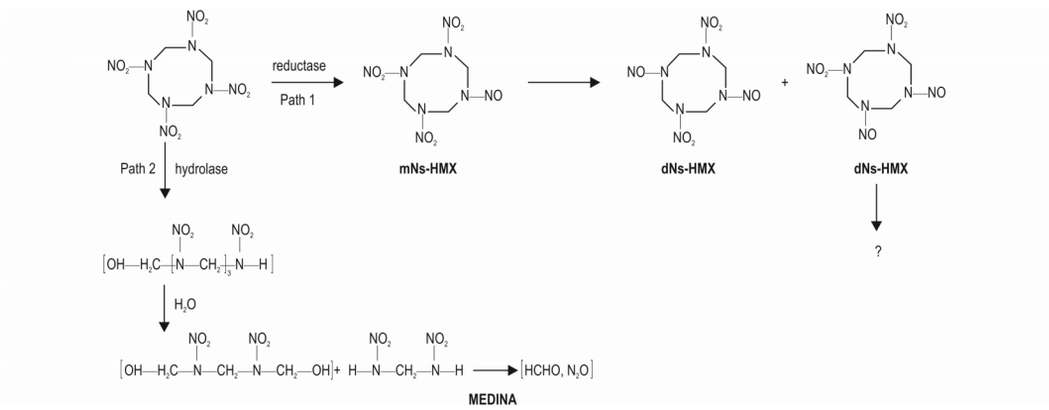


Under the optimized response surface conditions, the relationship between the concentration of *p*-nitrophenol and the growth of H strain showed that the PNP concentration of H strain decreased significantly during the adaptation period and continued to decrease during the exponential growth period.

SUN Hui-min, BAI Hong-juan, ZHANG Qing

***Chinese Journal of Energetic Materials*,2019,27(7):542-549**

Degradation Pathway of HMX and the Property of Crude Enzyme Produced by *Rhodobacter sphaeroides*

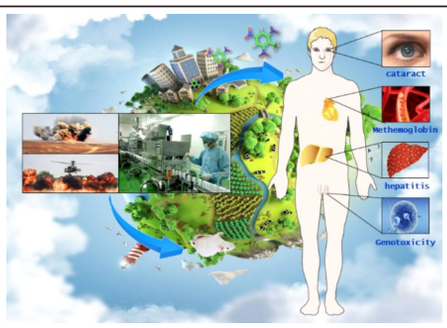


The intermediate products of HMX degradation by Rhodobacter sphaeroide were detected by LC-MS. The possible degradation pathways of HMX were deduced.

BAI Hong-juan, ZHAO Ting-ting, KANG Peng-zhou, GAO Li

***Chinese Journal of Energetic Materials*,2019,27(7):550-557**

Progress of Toxicity Effects and Mechanisms of Typical Explosives

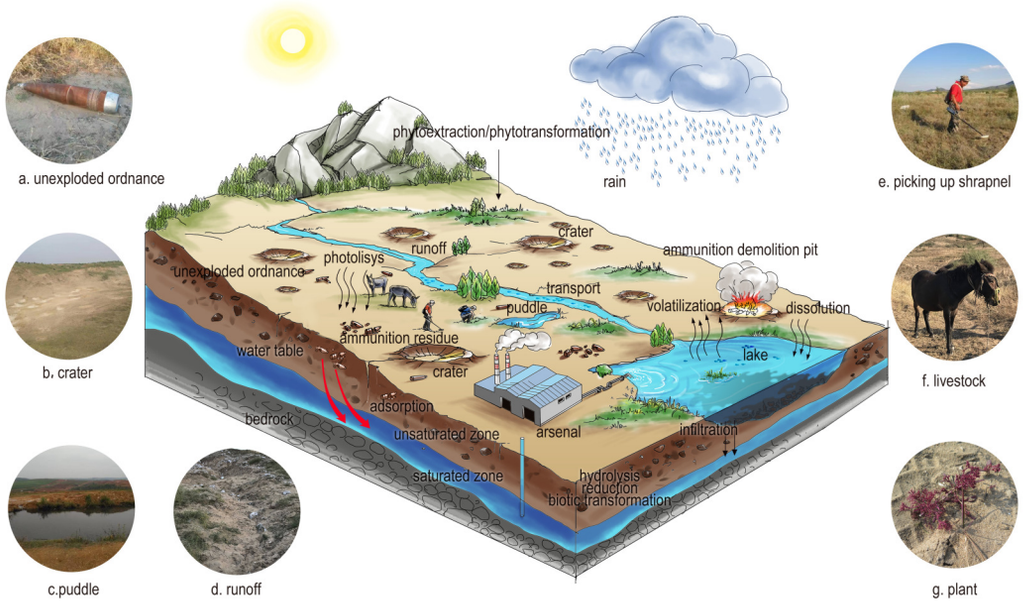


This review summarized the toxicity effects of typical explosives on cellular, microbial and animal, as well as the epidemiological statistics of occupational populations. Moreover, two toxic mechanisms of TNT was emphasized, oxidative stress and the reaction of TNT metabolites with protein and DNA, at the molecular level.

WEI Tong, ZHOU Yang, YANG Zhi-lin, YANG Hong

***Chinese Journal of Energetic Materials*,2019,27(7):558-568**

A Review on Environmental Behavior and Fate of Explosives in Multiphase Interfaces

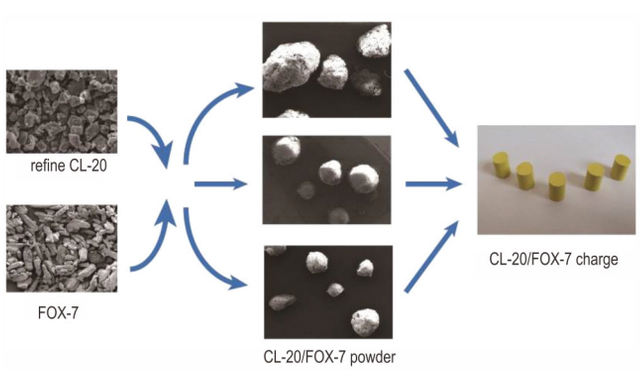


ZHANG Hui-jun, ZHU Yong-bing, ZHAO San-ping, HUANG Hui-hui, NIE Ya-guang, LIU Xiao-dong

***Chinese Journal of Energetic Materials*,2019,27(7):569−586**

Based on the pollution status of energetic compounds in domestic and foreign military ranges, the complex physical, chemical and biological processes and the influence factors of TNT, RDX and HMX in soil-water-organism system were reviewed, the latest research results of the environmental behavior of four common novel explosives were introduced, and future prospects for the environmental behavior and fate of energetic compounds were discussed.

Preparation and Property Characterization of CL-20/FOX-7 Polymer Bonded Explosive

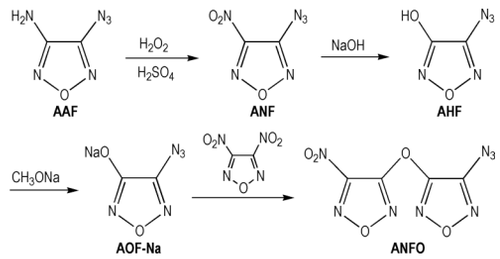


LI Xiao-dong, ZHANG Xi-ming, YANG Wu, SUN Hong-yan, SONG Chang-gui, WANG Jing-yu

***Chinese Journal of Energetic Materials*,2019,27(7):587−593**

Three kinds of CL-20/FOX-7 PBXs were prepared by water suspension coating method using Estane as coating agent and FOX-7 as energetic sensitivity-reducing component. The morphology, crystal form, thermal decomposition characteristic and impact and friction sensitivity of samples were tested and analyzed by SEM, XRD, DSC, impact sensitivity tester and friction sensitivity tester. The detonation velocity of three kinds of PBXs was tested by an electrical measurement method.

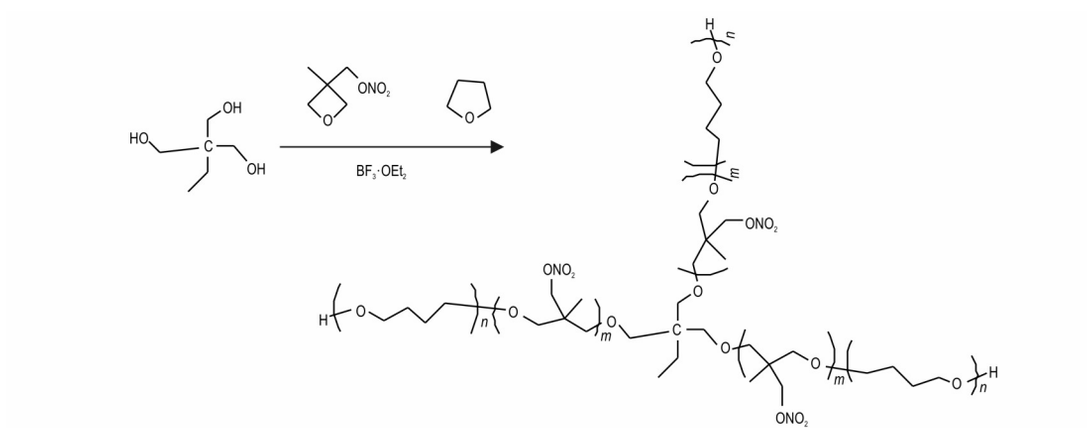
A Novel Unsymmetrical Furazan Ether 3-Azido-3′-nitrodifurazanyl Ether (ANFO): Synthesis and Quantum Chemistry Studies



Using 3-azido-4-aminofurazan (AAF) as starting material, a novel energetic compound 3-azido-3′-nitrodifurazanyl ether (ANFO) was designed and synthesized for the first time via Caro's acid oxidation, hydrolysis and intermolecular etherification sequence. The physicochemical properties and detonation performances of ANFO were calculated by DFT method.

WANG Xi-jie, BI Fu-qiang, LIAN Peng, LIU Ning, WANG Bo-zhou
***Chinese Journal of Energetic Materials*,2019,27(7):594−602**

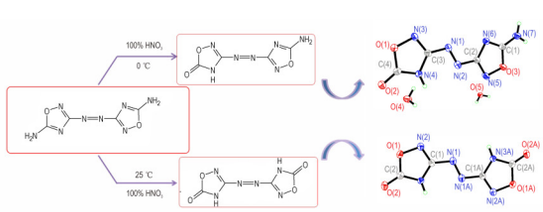
Synthesis and Curing of Tri-functionality NIMMO-THF Copolyether Energetic Binder



Tri-functionality NIMMO-THF copolyether was synthesized by polymerization of NIMMO (3-nitratomethyl-3-methyloxetane) and THF (tetrahydrofuran) in the presence of trimethylolpropane catalyzed by $BF_3 \cdot OEt_2$. The elastomer prepared with tri-functionality NIMMO-THF and hexamethylenediisocynate (HDI) were investigated.

WANG Xiao-chuan, LU Xian-ming, MO Hong-chang, XU Ming-hui, SHU Yuan-jie, LIU Ning
***Chinese Journal of Energetic Materials*,2019,27(7):603−608**

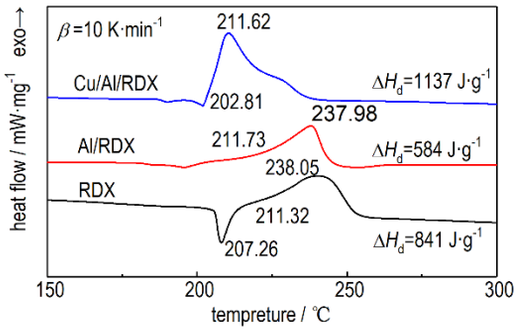
Crystal Structure and Thermal Stability of 3-(5′-Amino-3′-diazenyl-1′,2′,4′-oxadiazol)-5-one-1,2,4- oxadiazol (BAKIF) and 3,3′-Azo-1,2,4-oxadiazol-5,5′-dione (BDKIF)



3-(5′-Amino-3′-diazenyl-1′,2′,4′-oxadiazol)-5-one-1,2,4-oxadiazol (BAKIF) and 3, 3′-azo-1, 2, 4-oxadiazol-5, 5′-dione (BDKIF) were synthesized at different temperatures. Their single crystals were obtained by slow evaporation method. The thermal stability was determined by DSC-TG. They are insensitive to impact and friction.

WU Ke-lin, YANG Hong-wei, CHENG Guang-bin
***Chinese Journal of Energetic Materials*,2019,27(7):609−615**

Preparation of Cu/Al Composite and Its Effect on Thermal Decomposition Properties of RDX

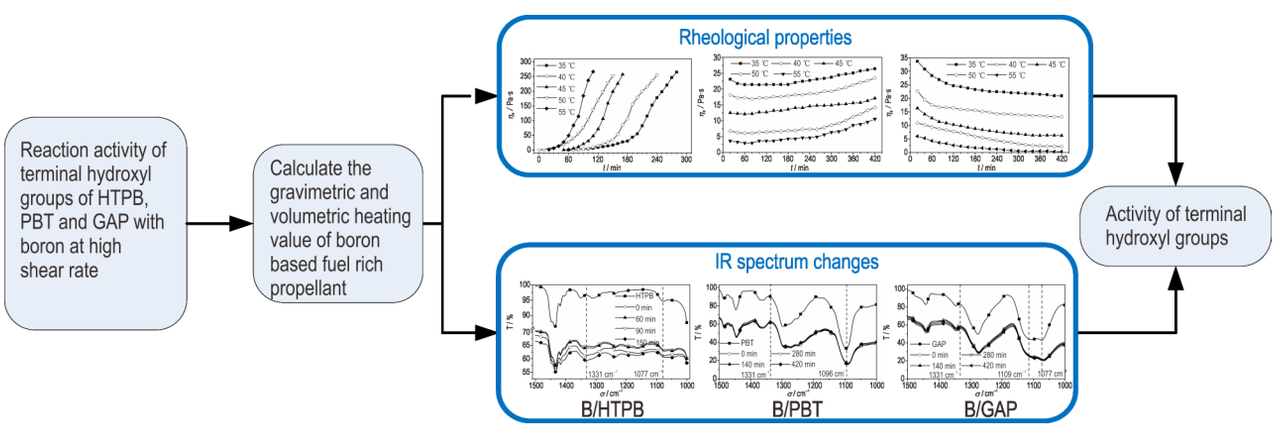


YAO Bing-jie, ZHENG Xiao-dong, LÜ Ying-di, TANG Wang, JIANG Jun, QIU Shao-jun

Chinese Journal of Energetic Materials, **2019,27(7):616-621**

Cu/Al composite was prepared by a displacement method. Effects of the Cu/Al composite on thethermal decomposition of RDX were studied by DSC. The thermal decomposition characteristics of Cu/Al/RDX, Al/ RDX and RDX were also discussed.

Reaction Activity of Terminal Hydroxyl Groups of HTPB, PBT and GAP with Boron at High Shear Rate



ZHANG Huai-long, WANG Yong, ZHOU Wei-liang, XIAO Le-qin

Chinese Journal of Energetic Materials, **2019,27(7):622-628**

The theoretical volumetric heating values of three boron-based propellants were calculated, in which hydroxyl-terminated polybutadiene (HTPB), 3, 3-bis (azidomethyl) oxetane and tetrahydrofuran copolyether (PBT) and gycidyl azide polymer (GAP) was used as the binder. The rheological properties and infrared characteristics of B/HTPB, B/PBT and B/GAP at high shear rate were studied by the co-rotating twin screw rheometer and Fourier transform infrared spectrometer, respectively.