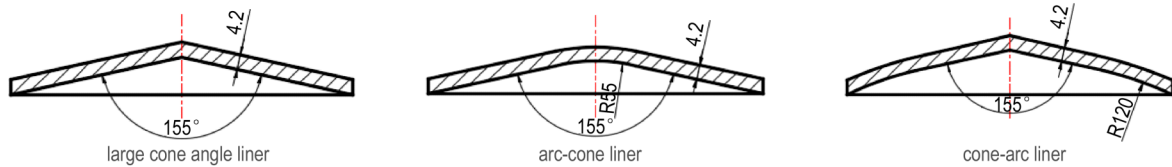


Feasibility of the Formation of Long Rod-shaped Compacted Explosively Formed Penetrator by Cone-arc Liner

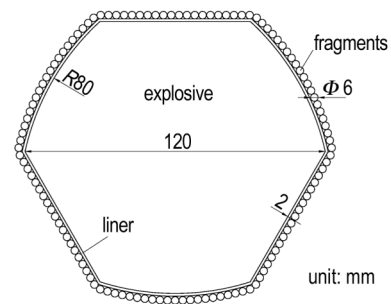


Based on the arc section design of large cone angle liner structure, a type of cone-arc liner was proposed. The difference in collapse process for cone-arc liner and the traditional large cone angle liner as well as arc-cone liner was analyzed. The influences and regulars of cone-arc liner structure parameters (curvature radius, cone angle and wall thickness) on the formation parameters of penetrator, such as velocity, length-diameter ratio and compactness, were obtained by LS-DYNA simulation software.

HUANG Xuan-ning, LI Wei-bing, CHENG Wei, WANG Xiao-ming,
LI Wen-bin

Chinese Journal of Energetic Materials, 2019, 27(2): 90–96

Numerical Modeling on lethality of a Faceted Prismatic Warhead

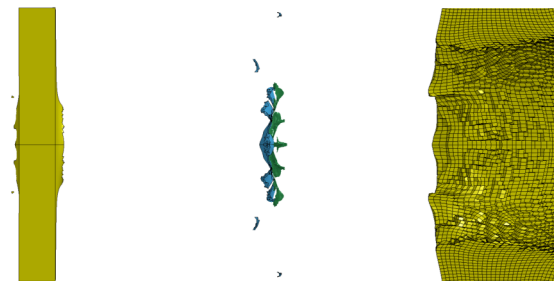


A faceted prismatic warhead composed of flat faces and convex faces is numerically studied in this paper, and the damage parameters like velocity and dispersion angle are analyzed.

LI Yuan, ZHAO Qian, XIONG Shi-hui, WEN Yu-quan

Chinese Journal of Energetic Materials, 2019, 27(2): 97–103

Numerical Simulation Analysis of the Influence of Cone Angle on EFP Forming with PELE Effect

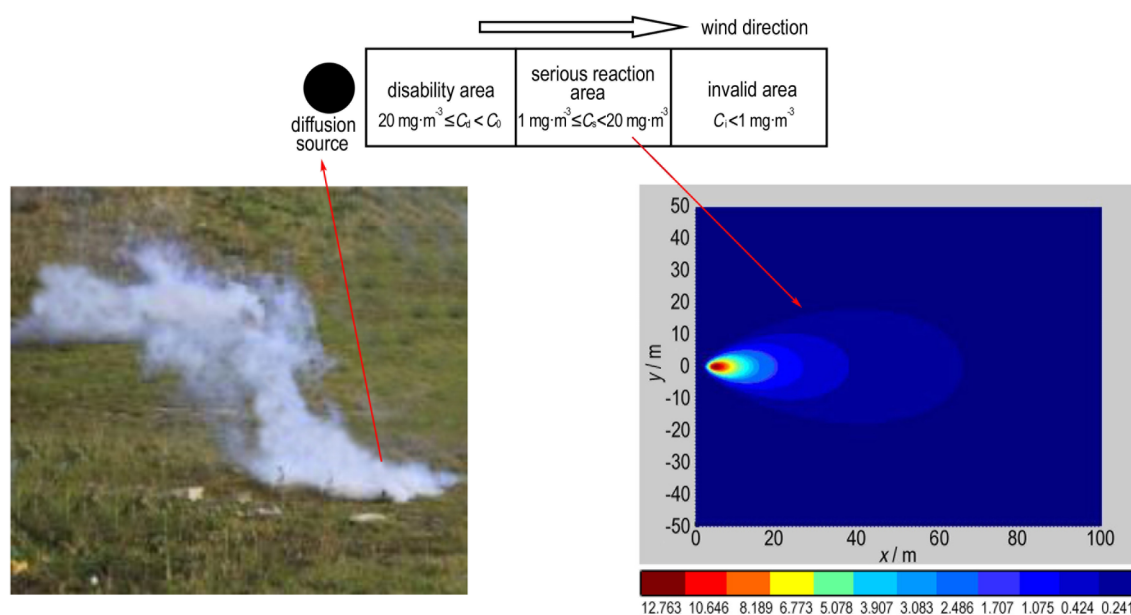


The novel EFP had a distinct lateral efficiency, which expanded the hole when it entered the target and formed some high-speed fragments in the target interior to cause secondary damage when it penetrated the target.

WANG Xue-fei, YIN Jian-ping

Chinese Journal of Energetic Materials, 2019, 27(2): 104–112

Simulation of Non-lethal Efficiency of Tear Bomb Aerosol Smoke Based on Gaussian Diffusion Model

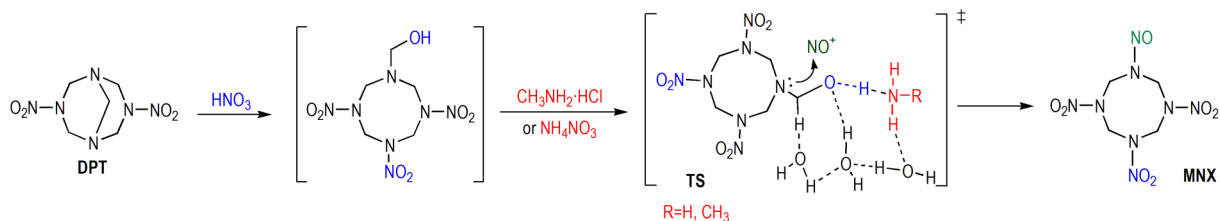


In order to study the non-lethal efficiency about aerosol smoke of tear bomb, the aerosol smoke diffusion process of tear bomb was studied by using Gaussian diffusion model. The simulation and calculation was carried out. The effective area of the aerosol smoke diffusion of tear bomb obtained was used as a measurement index of its non lethal efficiency. The effective area of the aerosol smoke was obtained.

WANG Zhi-gang, GUO San-xue

Chinese Journal of Energetic Materials, 2019, 27(2): 113–118

Preparation of MNX from DPT Through Nitrolysis-nitrosolysis Reaction in $\text{CH}_3\text{NH}_2 \cdot \text{HCl}$ /Fuming Nitric Acid System



ZHANG Yu, XU Zi-shuai, RUAN Jian, WANG Xiao-long,
ZHANG Lu-yao, LUO Jun

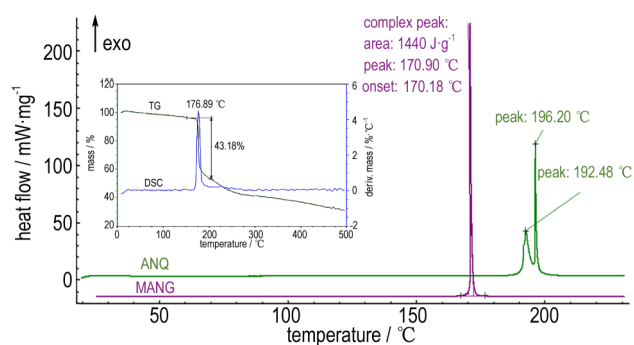
Chinese Journal of Energetic Materials, 2019, 27(2): 119–124

An efficient process for the synthesis of MNX using nitric acid as nitroso resource was developed. A reaction mechanism involving bicyclic transition state with amine and water was proposed.

Synthesis, Crystal Structure and Thermal Behavior of Methyleneaminonitroguanidine (MANG)

YANG Hang, FENG Zhi-cun, GUAN Xiao-ge, XU Kang-zhen,
SONG Ji-rong, ZHAO Feng-qi

Chinese Journal of Energetic Materials, 2019, 27(2): 125–130

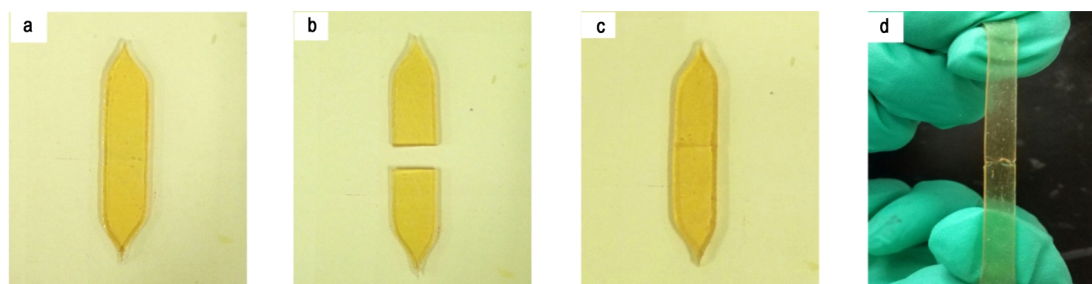


A new compound methyleneaminonitroguanidine (MANG) was synthesized using aminoguanidine (ANQ) and formaldehyde as raw materials, and the reaction process was analyzed. The crystal structure of MANG was analyzed by an X-ray single diffractometer.

Preparation and Performance of Self-healing Binder Based on GAP

JIAN Xiao-xia, SONG Yu-fang, ZHAO Meng-hui, LIANG Yi,
ZHOU Wei-liang, XIAO Le-qin

Chinese Journal of Energetic Materials, 2019, 27(2): 131–136

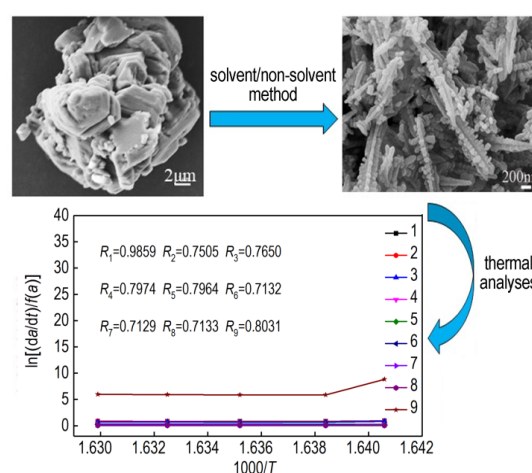


GAP-based binders with self-healing properties were firstly synthesized through an one-step method, the surface cracks were basically healed and the self-healing efficiency can reach 98.2% after self-healing for 24 h at 60 °C.

Construction and Thermal Decomposition Kinetics of the Keel-like Nanostructure TATB

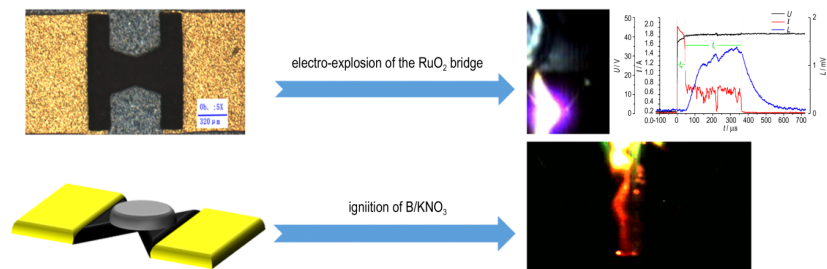
LI Ping, AODENG Gao-wa, LI Chun-zhi, DUAN Xiao-hui,
PEI Chong-hua

Chinese Journal of Energetic Materials, 2019, 27(2): 137–143



Through strong nonsolvent effect and temperature effect, the keel-like nanostructure TATB was prepared with solvent / non-solvent method. The thermal decomposition mechanism of keel-like nanostructure TATB obtained by differential method.

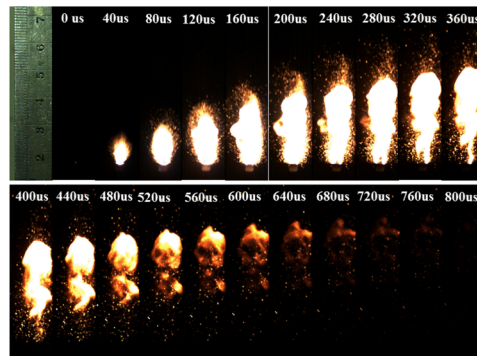
Electro-explosion and Ignition Performance of the RuO₂ Ignition Bridge



The new V-type RuO₂ ignition bridges were designed with varied angle, length / width ratio and narrowest distance, which were fabricated by low-temperature co-fired ceramic (LTCC). The electro-explosion properties were investigated and the optimized RuO₂ bridges were selected. In addition, the ignition of B/KNO₃ mixture was conducted to further estimate the energy output of the new RuO₂ bridge.

XU Wei, DAI Ji, XU Jian-bing, SHEN Yun, YE Ying-hua, SHEN Rui-q
Chinese Journal of Energetic Materials, 2019, 27(2):144–148

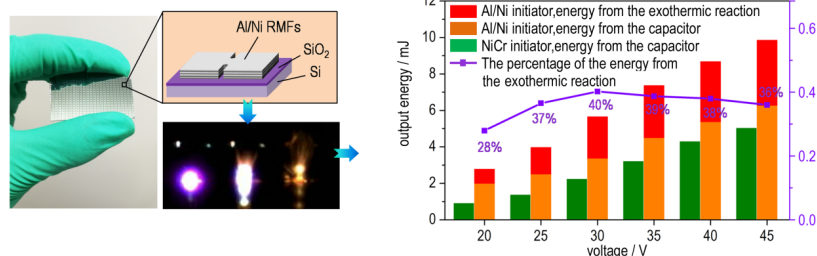
The Gap Ignition Performances of Semiconductor Bridge Based on Al/CuO_x Multilayer Films



NI De-bin, YU Guo-qiang, SHI Sheng-nan, XU Dong, CHEN Li-kui,
 ZHU Ya-hong, WANG Pei-yong
Chinese Journal of Energetic Materials, 2019, 27(2):149–154

Al/CuO_x multilayer films were integrated with semiconductor bridges to realize the gap ignition ability.

Characteristics and Laws of Energy Release for Multilayer Al/Ni RMFs Under Capacitive Discharge Excitation



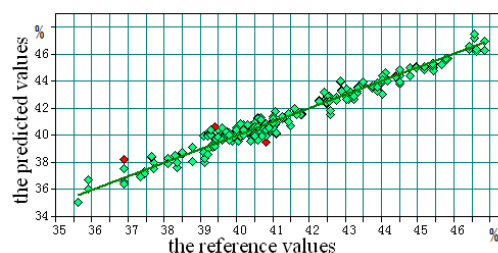
A micro energetic initiator realized by integrating Al/Ni reactive multilayer films(RMFs). It is fabricated by using a combination of photolithography, sputtering, and lift-off techniques on Si wafer. The capacitive discharge was used to excite the Al/Ni initiator in order to investigate the characteristics of energy release in Al/Ni RMFs. The output energy of Al/Ni RMFs initiator was calibrated by using the theoretic model, and compared with NiCr film initiator.

FU Shuai, SHEN Rui-q, ZHU Peng, YE Ying-hua, MA Hong-ling
Chinese Journal of Energetic Materials, 2019, 27(2):155–161

Detection Method of the Main Components in Modified Composition B by Near Infrared Spectroscopy

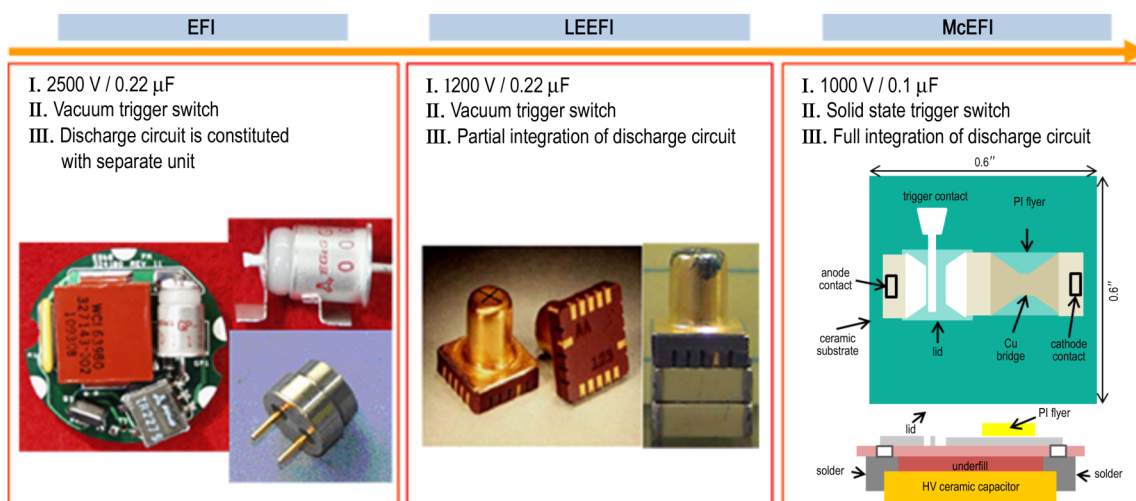
WEN Xiao-yan, SU Peng-fei, PAN Qing, DONG Xiao-hu,
YANG Jian-ming

Chinese Journal of Energetic Materials, 2019, 27(2): 162–166



A rapid component detection method of modified Composition B was studied by near infrared spectroscopy. The quantitative models of main components TNT and RDX were established by partial least squares (PLS) method.

Review on Micro Chip Exploding Foil Initiator and Its Planar High-voltage Switch



There are three stages among the development of Exploding Foil Initiator system: Exploding Foil Initiator system (EFIs), Low Energy Exploding Foil Initiator system (LEEFIs) and Micro Chip Exploding Foil Initiator system (McEFIs). It was summarized respectively that the research progress of Micro Chip Exploding Foil Initiator (McEFI), Planar High-voltage Switch and the integration fabrication of this two ingredients by means of Micro Electro Mechanical System (MEMS) and Low Temperature Co-fired Ceramics (LTCC) technologies, which will furnish researchers with practicable-beneficial reference.

YANG Zhi, ZHU Peng, XU Cong, ZHANG Qiu, QIN Xin,
SHEN Rui-qj

Chinese Journal of Energetic Materials, 2019, 27(2): 167–176

Executive editor: GAO Yi WANG Yan-xiu ZHANG Qi JIANG Mei