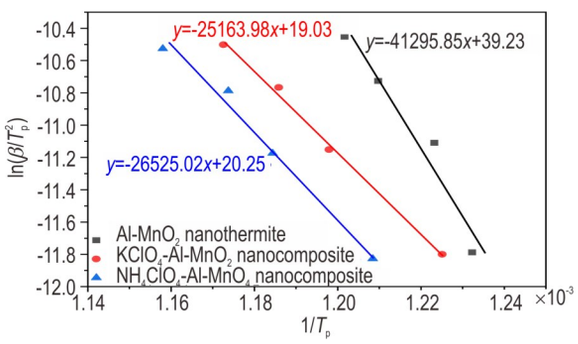
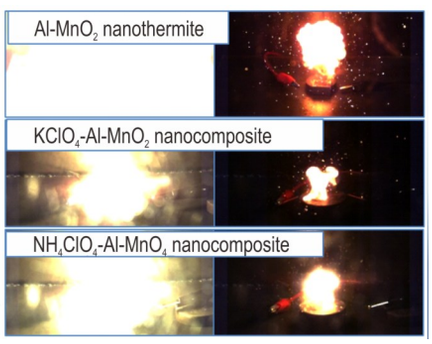
Effects of Perchlorates on Thermal Properties and Combustion Performance of Al-MnO_2 Nanothermite



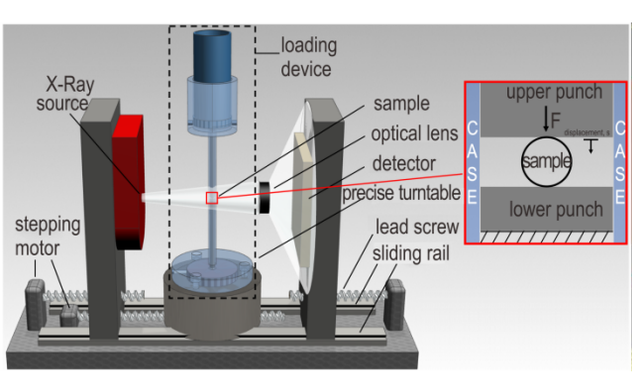


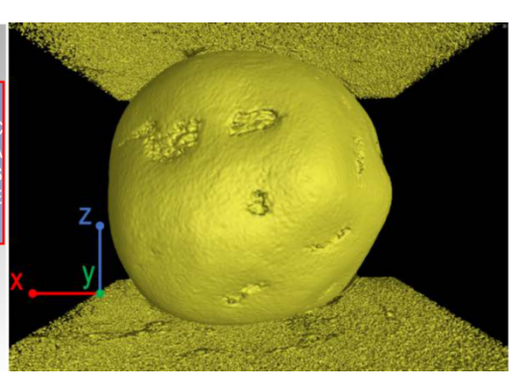
SONG Jia-xing, GUO Tao, YAO Miao, CHEN Jia-lin, DING Wen, LIU Xiao-feng

***Chinese Journal of Energetic Materials* (*Hanneng Cailiao*), 2020,28(10):953-959**

The effects of potassium perchlorate ($KClO_4$) and ammonium perchlorate (NH_4ClO_4) on reactivity of Al-MnO_2 nanothermite have been studied.

Mechanical Property of the Single TATB Granule by Uniaxial Compression



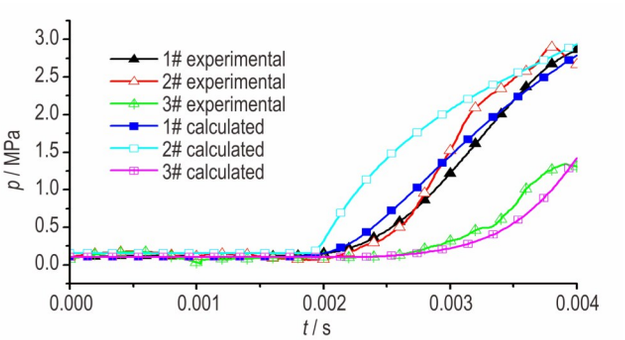


MA Yin-xiang, LIU Chen, WANG Hui, ZHANG Cai-xin, CHEN Hua, ZHANG Wei-bin

***Chinese Journal of Energetic Materials* (*Hanneng Cailiao*), 2020,28(10):960-968**

To study the compression behavior and mechanical response of TATB granules, TATB particles were studied by in-situ uniaxial loading device combined with Micro-computed tomography (CT) analysis respectively. Their mechanical properties were determined by characterizing the force-displacement experimental curve.

The Propagation Characteristics of Ignition Flame in Propellant Particle Bed Based on Porous Media Model

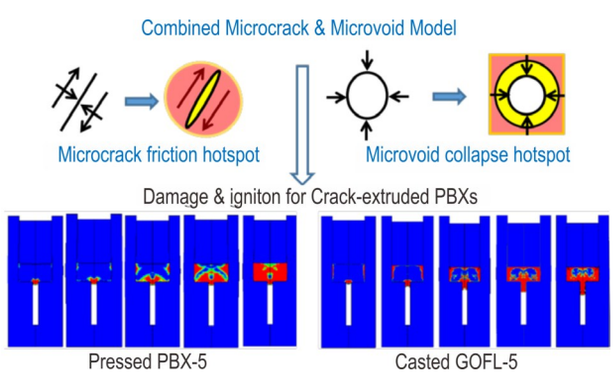


LIU Cheng, TAO Ru-yi, XUE Shao, WANG Hao

Chinese Journal of Energetic Materials **(*Hanneng Cailiao*), 2020,28(10):969-974**

Ignition and transfer test of ignition charge in the propellant chamber was carried out in the structure of which the fire was ignited in the central tube and spread in the dense propellant charge bed. The propagation process of ignition flame was simulated. The experimental and simulation results were compared and verifying the correctness of the simulation model.

Damage-ignition Simulation for Typical Pressed and Casted PBX under Crack-extruded Loading

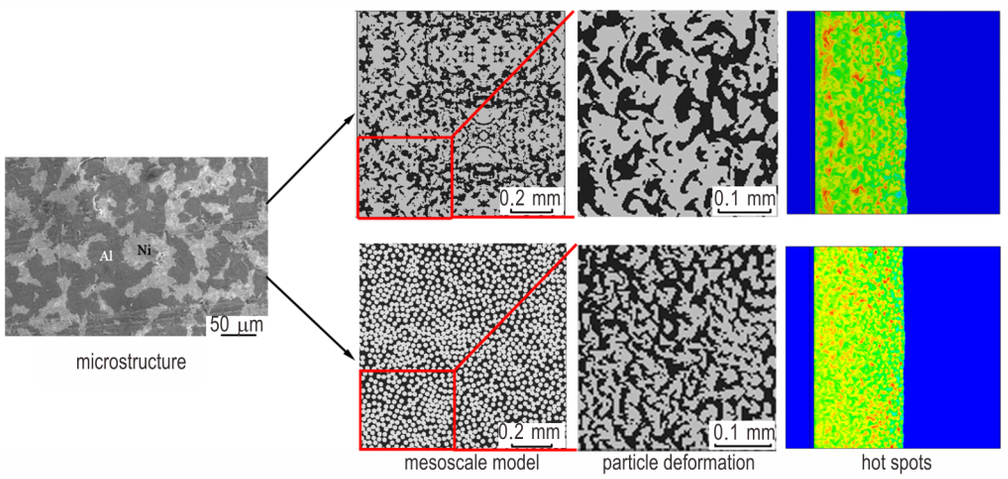


YANG Kun, WU Yan-qing, JIN Peng-gang, HUANG Feng-lei

Chinese Journal of Energetic Materials **(*Hanneng Cailiao*), 2020,28(10):975-983**

Using the combined microcrack and microvoid model (CMM), damage-ignition responses and its underlying mesoscopic mechanism for pressed and casted PBXs under crack-extruded loading are investigated.

Mesoscale Modeling on Dynamic Behavior of Al/Ni Energetic Structural Materials Under Shock Compression

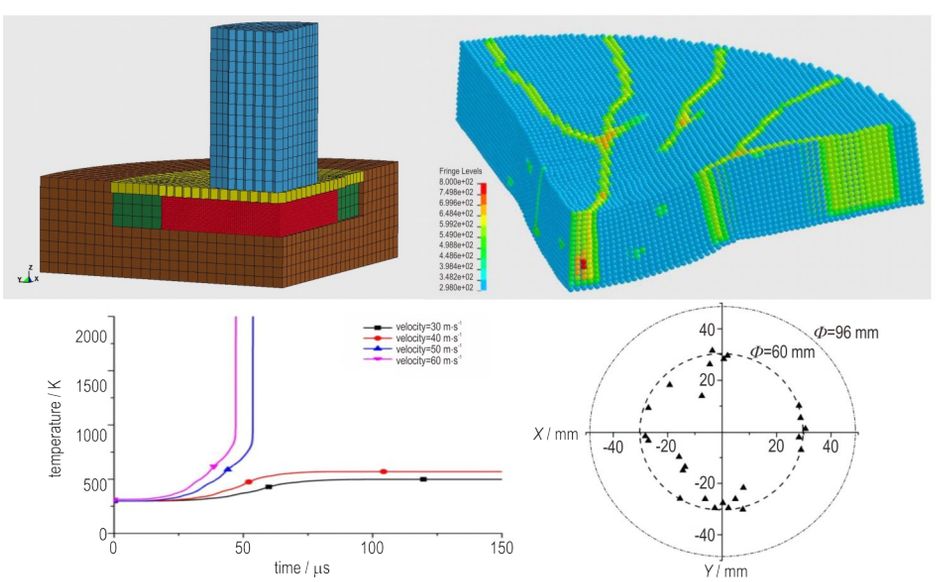


XIONG Wei, ZHANG Xian-feng, CHEN Hai-hua, DU Ning, BAO Kuo, TAN Meng-ting

Chinese Journal of Energetic Materials **(*Hanneng Cailiao*), 2020,28(10):984−994**

The dynamic behaviors of shocked Al/Ni energetic structural materials, including particle deformation, pressure, temperature, and propagation of shock waves, were investigated by two types of mesoscale modelling methods, which are established based on the SEM images and the uniform particle morphologies, respectively.

Three-dimensional Numerical Simulation of Steven Test by the Combined Finite-Discrete Element Method

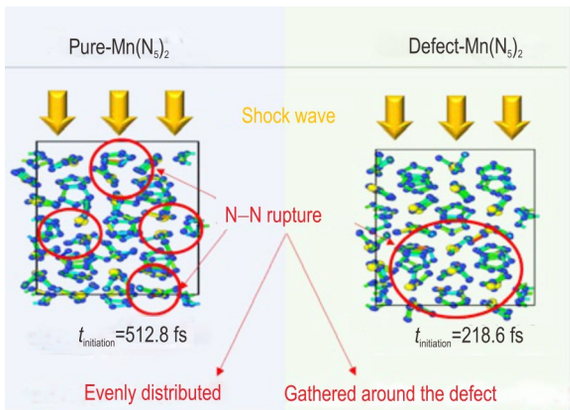


HUANG Bin-bin, FU Hua, YU Yin, LIU Cang-li

Chinese Journal of Energetic Materials **(*Hanneng Cailiao*), 2020,28(10):995−1002**

Taking Steven impact test as an example, a combined finite-discrete element method was established to simulate the crack growth and frictional heating in explosives. The history of load stress, crack distribution, temperature rise curve, ignition time and position, and velocity threshold of impact ignition were obtained.

Effect of vacancy defect on shock reaction and damage evolution of pentazolate salt $Mn(N_5)_2$

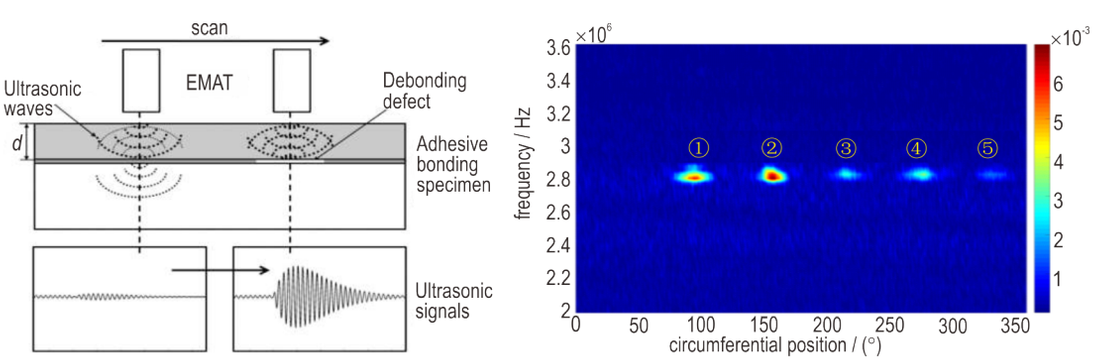


YAO Chuang, YANG Ye-zi, YU Yi, SUN Chang-qing, ZHANG Lei

Chinese Journal of Energetic Materials **(*Hanneng Cailiao*), 2020,28(10):1003−1009**

Chemical decomposition, and damage evolution of pentazolate salts, *ab initio* molecular dynamics method is employed to simulate the dynamics evolution and initial chemical reaction mechanisms for perfect $Mn(N_5)_2$ crystal and the crystal with 3% vacancy defects under different shock velocities (8, 9, 10, 11, 12 km·s^{-1}).

Interface Debonding Inspection in Metal Ring and Energy-Containing Material Bonding StructureBased on Electromagnetic Acoustic Resonance

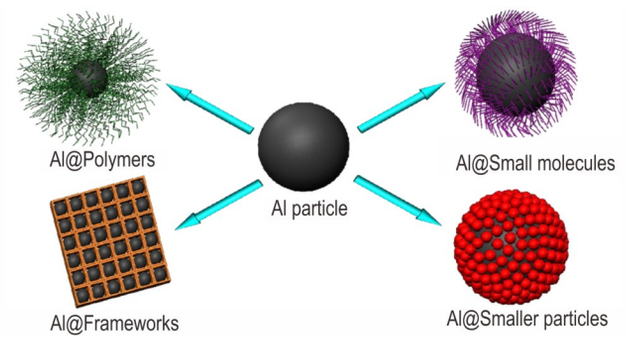


ZHOU Hai-qiang, LIU Tian-hao, PEI Cui-xiang

Chinese Journal of Energetic Materials **(*Hanneng Cailiao*), 2020,28(10):1010−1016**

A new non-contact testing method based on electromagnetic acoustic resonance is proposed for the inspection of interface debonding defect in metal ring-energetic material bonding structure. Simulated of debonding defects specimen were scanned and imaged automatically with the developed automatic scanning system of electromagnetic acoustic testing.

Surface Modification Technologies of Energetic Aluminum Powders: A Review

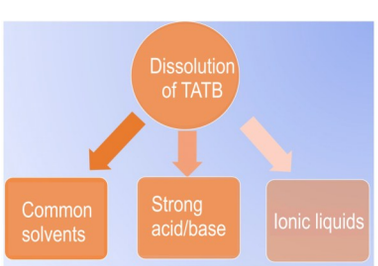


Surface modification, aiming to inhibit the agglomeration and oxidation, is a key way to improve the burning and explosion performance of aluminum powders. A review of the present researches of Al particles modified by different types of components are provided. The preparation and performance are compared and the corresponding application directions are discussed.

LIU Yong, BAI Hai-jun, GAN Qiao-yu, JING Huang-li, SHI Jian-bo, WANG Hong-bo, HUANG Ge, ZHAO Qi-zhi

***Chinese Journal of Energetic Materials* (*Hanneng Cailiao*), 2020,28(10):1017-1025**

Review on the Dissolution Characteristics of TATB in Different Solvents



Research progress in the dissolution characteristics of 1,3,5-triamino-2,4,6-trinitrobenzene (TATB) in different solvents were reviewed, including common solvents, strong acid and base, and ionic liquids. Meanwhile, the advantages and limitations of different solvents were compared, and suggestions for future research on new solvent design were proposed.

JIA Jian-hui, CHEN Jian-bo, LIU Yu

***Chinese Journal of Energetic Materials* (*Hanneng Cailiao*), 2020,28(10):1026-1034**