

《含能材料》2013年(第21卷)总目次

第1期

◆ 研究论文

- 离子液体存在下重结晶制备降感 HMX 齐秀芳, 邓仲焱, 王敦举, 王 茜, 程广斌, 吕春绪 (1)
 HNAB 的制备及其热分解动力学 张 静, 王 娟, 徐海凤, 周新利 (7)
 $[MIMPS][HSO_4]$ 催化 N_2O_5 硝化 2,6-二乙酰氨基吡嗪-1-氧化物 赵晓锋, 成 健, 刘祖亮 (12)
 2,4,5-三硝基咪唑铵盐新法合成及性能 侯可辉, 刘祖亮, 张华燕, 成 健 (16)
 连三嗪化合物的合成及反应机理 李亚南, 常海波, 王伯周, 王友兵, 杨 威, 廉 鹏, 李 辉, 张志忠 (19)
 熔铸炸药加压凝固过程研究 黄 勇, 郑保辉, 谢志毅, 王冬磊 (25)
 B 炸药落锤撞击点火的数值模拟 袁俊明, 刘玉存, 曹文军 (30)
 碳纳米管及碳黑对 BNCP 感度性能的影响 陈利魁, 盛涤伦, 杨 斌, 朱雅红, 徐珉昊, 蒲彦利, 李钊鑫 (35)
 纳米铝热剂 Al/CuO 的制备及性能 宋 薛, 王 军, 杨光成, 聂福德 (39)
 晶形控制剂对 HMX 炸药晶体生长影响的实验研究 张小连, 张景林, 王金英 (44)
 水介质中 N,N -二甲基-2-叠氮乙胺盐酸盐的合成反应动力学 孙甜甜, 厉 刚 (49)
 ZrO_2 和 ZrB_2 在螺压双基推进剂中的应用 陈 琮, 张 佩, 张晓宏, 陈雪莉, 王 琦, 曹 磊, 樊明辉 (53)
 LiF 包覆对硼粉热氧化特性的影响 陈 涛, 张先瑞, 王园园, 黄 凌, 肖金武 (57)
 Al 粉对 NEPE 推进剂感度的影响 程新丽, 赵孝彬, 李 军 (61)
 BAMO/GAP 无规共聚物/N100/IPDI 体系胶片性能研究 赵一搏, 罗运军, 张 弛 (64)
 广义 C-J 条件在计算含铝炸药波头参数中的应用 王庭辉, 段祝平, 苏健军, 田清政 (68)
 点火过程对小型固体火箭发动机内弹道影响 刘 赞, 王 浩, 陶如意, 朱德龙 (75)
 双模战斗部结构正交优化设计 陈 奎, 李伟兵, 王晓鸣, 韩 玉, 彭正午 (80)
 多向线性聚能切割弹的研究与应用 夏红兵, 李 磊, 马宏昊, 沈兆武, 黄世华 (85)
 含双芳-3 发射药的灌注炸药爆轰性能 王 鹏, 魏晚安, 何卫东 (92)
 定容燃烧器法热损失率不确定度分析 胡松启, 刘 凯, 王鹏飞, 徐秋丽, 周宴星 (97)
 废旧 CS 焚烧销毁原理与作业参数的优化 王玄玉, 王黎娜 (103)

◆ 综述

- 含能低共熔物研究进展 陈 玲, 舒远杰, 徐瑞娟, 徐 涛, 王新锋 (108)
 多叠氮类化合物的合成研究进展 丁可伟, 李陶琦, 葛忠学, 刘 庆 (116)
 TNT 替代物含能三唑盐的合成及性能研究进展 华文龙, 叶志文 (121)
 2,4,6-三硝基-2,4,6-三氮杂环己酮的合成研究进展 马丛明, 刘祖亮, 姚其正 (126)

◆ 研究快报

- 新法合成呋咱并[3,4-e]-4,6-二氮氧化-1,2,3,4-四嗪(英) 王伯周, 李祥志, 李 辉, 霍 欢, 周彦水, 樊学忠, 李吉祯 (131)
 2,4,6-三甲基苯磺酰羟胺的合成与性能 马 卿, 王 军, 张晓玉, 舒远杰 (133)

◆ 含能快递 (135)

◆ 读者·作者·编者

- 更正(91) 《火工药剂学》出版(107) 特别策划——《计算含能材料研究》专栏征稿(115)

第2期 创刊20周年专辑

◆ 特约评论

- 含能配合物研究新进展 张同来, 武碧栋, 杨利, 周遵宁, 张建国 (137)
 “量子炸药化学”及其拓展——评介几部学术著作的“序”和“前言” 肖鹤鸣, 朱卫华, 肖继军, 王桂香, 刘冬梅 (152)
 熔铸炸药载体的研究评述 曹端林, 李雅津, 杜耀, 王建龙, 李永祥 (157)
 含能材料理论设计中的几个问题(英) 舒远杰, 李华荣, 熊鹰, 周阳, 钱文 (166)
 氮杂环化合物氧化偶联反应的研究进展 肖啸, 葛忠学, 刘庆, 许诚, 汪伟, 苏海鹏, 毕福强 (173)

◆ 研究论文

- 从不同升温速率下的 DSC 曲线数据计算/确定含能材料放热分解反应 Arrhenius/非 Arrhenius 动力学参数的方法
 胡荣祖, 马海霞, 严彪, 张海, 韩路, 高红旭, 赵凤起, 姚二岗, 赵宏安 (180)
 含吡啶/氨基苯环硝胺炸药的理论设计与合成 陆明, 赵国政, 聂福德, 李金山 (194)
 RDX 晶体的破碎与细观断裂行为 李明, 陈天娜, 庞海燕, 黄明 (200)
 温压时效处理 PBX 内部裂纹愈合现象研究 兰琼, 戴斌, 杨白凤, 李敬明, 贺建华 (205)
 PDADN 在螺压硝胺改性双基推进剂中的应用研究 刘所恩, 周伟良, 潘藻, 赵美玲, 邹伟伟 (209)
 5-氨基四唑硝仿盐的理论计算 刘威, 李玉川, 李小童, 杨雨璋, 林秋汉, 庞思平 (213)
 全氮苯 N₆ 的结构及合成可行性 赵国政, 陆明 (217)
 镁离子催化下 2-(二硝基亚甲基)-1,3-二氮环戊烷的合成 刘磐, 徐志斌, 王伯周, 葛忠学, 王鹏, 孟子晖 (222)
 五种呋咱衍生物的新法合成 高莉, 杨红伟, 伍波, 程广斌, 吕春绪 (226)
 NC/Al 纳米复合含能材料的制备与表征 晋苗苗, 罗运军 (230)
 CL-20 基直写炸药油墨的制备与表征 朱自强, 陈瑾, 谭志强, 黄兵, 杨光成, 聂福德 (235)
 AC/TiO₂ 复合颗粒的低温制备及对 TNT 废水的降解 杜仕国, 闫军, 汪明珠, 王彬 (239)
 火工药剂静电积累量的测试 周铭锐, 李志敏, 张同来, 武碧栋, 杨利, 张建国, 周遵宁 (244)
 环形聚能装药水射流成型过程的数值研究 裴红波, 焦清介, 聂建新 (249)
 一种双模态 EFP 战斗部的数值仿真 臧立伟, 尹建平, 王志军 (253)

◆ 特别策划：新能源材料

- 高氯酸铵脱介孔氧化硅有机模板剂 杨荣极, 蔡华强, 田莉, 姜凯, 黄辉 (257)
 铝粉与水反应的电化学研究 全大明, 蔡水洲, 谢长生, 曾大文, 夏先平 (262)
 储氢材料在乳化炸药中的应用 程扬帆, 刘蓉, 马宏昊, 沈兆武 (268)

◆ 研究快报

- 一种合成 3,3'-二氨基-4,4'-氧化偶氮呋咱的新方法 吴敏杰, 陈树森, 金韶华, 李丽洁 (273)
 2-(2',4',6'-三硝基)苯胺基-4-硝基咪唑的合成及热分解 贾凯, 刘祖亮, 侯可辉 (276)
 RDX/HMX 对含硼富燃料推进剂燃烧性能的影响(英) 刘林林, 何国强, 王英红 (278)
 TATB 造型颗粒内部微结构特征 张伟斌, 戴斌, 杨雪海, 田勇, 肖丽, 杨存丰, 杨仍才 (279)

◆ 读者·作者·编者

- 祝贺《含能材料》创刊 20 周年——欧育湘教授(151) 特别策划——《计算含能材料研究》专栏征稿(165) 特别策划——《液体推进剂的研究》专栏征稿(165) “GTX 起爆药及其系列雷管技术”获得广西科学技术进步一等奖(212) 中国兵工学会火工烟火专业第十七届学术年会征文通知(216) 中国航天科工集团固体推进剂安全技术研究中心第二届学术会议征文通知(第一轮)(275)

第3期**◆ 研究论文**

- 氨基、肼基、叠氮基双取代均四嗪的理论研究 满田田, 尚 静, 冯金玲, 张建国, 舒远杰, 张同来, 周遵宁 (281)
 3,4-双(3'-氨基呋咱-4'-基)呋咱的合成与表征 贾思媛, 张海昊, 王伯周, 周彦水, 霍 欢 (289)
 LLM-105 炸药制备工艺改进 邓明哲, 周杰文, 王伯周, 叶志虎, 田战怀 (294)
 3,4-二硝基毗唑的热行为及其与某些炸药组分的相容性 蒋秋黎, 王 浩, 罗一鸣, 王 玮, 谢中元, 高 杰 (297)
 RDX 单晶的生长诱导位错表征 周小清, 李洪珍, 徐 容, 王述存, 黄 明 (301)
 TATB 基高聚物粘结炸药高温力学性能 涂小珍, 张 波, 韦兴文, 王维欣 (306)
 三氯化氮的电化学合成及表征 纪晓唐, 葛忠学, 刘 庆, 李陶琦, 丁可伟, 栾洁玉 (310)
 端羟基 P(GA-b-AMMO) 的合成与表征 卢光明, 姬月萍, 李 娜, 莫洪昌, 栾 磊, 姚逸伦, 邢 颖 (313)
 LS 基推进剂的热解特性 胡松启, 陈 静, 吴素丽, 邓 哲 (319)
 基于能量守恒的 HTPB 推进剂非线性本构关系 龚建良, 刘佩进, 李 强 (325)
 SEM 与数字图像法分析复合推进剂细观破坏 李高春, 刘著卿, 张 琰, 邱 欣, 隋玉堂 (330)
 含能钾盐消焰剂对硝胺改性双基推进剂性能的影响 齐晓飞, 李军强, 张晓宏, 李笑江, 郑 伟, 刘 鹏 (334)
 铝纳米粒子的液相化学还原法制备与表征 梁晓蕾, 刘才林, 任先艳, 杨海君, 王 缘, 王 用, 舛卷平 (339)
 NG 含量对改性单基药燃烧渐增性的影响 姚月娟, 刘少武, 王 锋, 于慧芳, 李 达, 陈 腾 (343)
 一种身管武器膛口烟雾总量的测量方法 赵宝明, 赵宏立, 杨丽侠, 李 先, 陈晓明, 赵 琨, 张 衡, 斯建伟, 刘来东 (347)
 动力源火工品点火过程中主装药温度特性数值计算 蒋新广, 王海南, 柳维旗, 姜志保, 刘玉宇 (351)
 低爆速爆炸焊接乳化炸药的制备与性能 黄文尧, 张 凯, 吴红波, 胡 鑫, 王道阳, 申夏夏, 余 燕 (357)
 3-硝基-1,2,4-三唑-5-酮(NTO)废酸的循环利用 黄新萍, 常 佩, 王伯周, 李普瑞, 王民昌, 樊学忠, 冯红联 (363)
 白腐真菌-泥炭净化处理 DDNP 废水 王惠娥, 孙继林, 颜事龙, 张学才 (367)

◆ 综述

- 压制 PBX 中炸药晶体损伤的研究进展 刘佳辉, 刘世俊, 黄 明, 李洪珍, 聂福德 (372)
 氧化性气氛中镁颗粒燃烧特性研究进展 黄 序, 夏智勋, 黄利亚, 胡建新 (379)
 火工品用复合半导体桥技术的研究与发展 李 勇, 周 彬, 秦志春, 沈瑞琪, 陈 飞, 杜培康, 贾 昕, 文雷鸣, 张君德 (387)

◆ 研究快报

- 新型高氮含能化合物 Zn(5-NATZ)₂(H₂O)₄ 的晶体结构(英) 吴金婷, 张建国, 李敬玉, 张同来, 周遵宁, 杨 利 (394)
 3,4-二硝基氧化呋咱的合成(英) 李 辉, 王伯周, 来蔚鹏, 王民昌, 毕福强, 葛忠学 (396)
 6-硝亚氨基-4,8-二硝基-5,6,7,8-四氯化-4H-咪唑烷并[4,5-e]呋咱并[3,4-b]哌嗪的合成(英) 霍 欢, 王伯周, 廉 鹏, 来蔚鹏, 葛忠学, 张叶高 (398)

◆ 含能快递 (400)**◆ 读者·作者·编者**

- 特别策划——《计算含能材料研究》专栏征稿(324) 特别策划——《液体推进剂的研究》专栏征稿(324) 第十六届国际含能材料新趋势会议成功召开(356) 更正(362)

第4期**◆ 研究论文**

- HMX/AP 共晶的制备与表征 陈杰, 段晓惠, 裴重华 (409)
 1-甲基咪唑硝酸盐辅助直接硝解法制备降感 RDX 齐秀芳, 何俊蓉, 程广斌, 吕春绪 (414)
 环氧氯丙烷的 N_2O_5 硝化 石飞, 王庆法 (419)
 2,6-二氨基-3,5-二硝基吡啶-1-氧化物的精制 周心龙, 刘祖亮, 成健, 苏强, 郝尧刚, 胡炳成 (423)
 4,4'-联-1,2,4-三唑的合成、表征和晶体结构 李磊, 池钰, 张勇, 赵廷兴, 李鸿波 (429)
 TATB 近太赫兹波段的吸收特性及其密度泛函理论计算 贾传强, 宋涛, 刘晓亚, 张振伟, 蒋刚 (434)
 含能粘结剂丙烯酸偕二硝基丙酯-乙酸乙烯酯共聚物的合成及性能 张公正, 向星, 房永曦, 王晓川 (439)
 4,5-二(1H-四唑-5-基)-1H-咪唑的合成及热性能
 毕福强, 李吉祯, 许诚, 樊学忠, 高红旭, 康冰, 葛忠学, 刘庆 (443)
 3,6-二硝基吡唑[4,3-c]并吡唑(DNPP)百克量合成及 DNPP·H₂O 晶体结构
 李亚南, 王伯周, 罗义芬, 杨威, 王友兵, 李辉 (449)
 微波强化 Fenton 降解偏二甲肼废水 张淑娟, 陈啸剑, 吴婉娥, 王煊军 (455)
 烟火药水下燃烧高温粒子与水作用的气泡动力学模型 欧阳的华 (460)
 底排推进剂瞬态泄压工况下燃烧流场特性的数值模拟 曹永杰, 余永刚, 叶锐, 周彦煌, 姚远 (464)
 炸药有效弹性性能的细观尺度仿真预估 贾宪振, 王浩, 王建灵 (469)
 DNTF 的核磁表征及理论研究 王民昌, 毕福强, 张皋, 莱洁玉, 徐敏, 宁艳利, 樊学忠 (473)
 溶剂对环加成反应 $H_3N + NH_2CN \rightarrow 5\text{-AT}$ 影响的理论研究(英) 朱蔚鹏, 廉鹏, 尉涛, 陈晓芳, 邱少君, 常海波 (479)
 RDX 和 HMX 晶体力学性能的分子动力学模拟及其撞击加载响应 郭昕, 南海, 齐晓飞, 田轩, 牛余雷, 张军平 (485)
 基于圆弧压头巴西试验测试脆性炸药拉伸性能 温茂萍, 唐维, 周筱雨, 庞海燕, 朱凤云 (490)
 DNTF/RDX-CMDB 推进剂低温力学性能 肖玮, 李亮亮, 王江宁, 苏健军, 王世英, 董树南, 屈可朋 (495)
 短脉冲电流作用下铜微桥箔的电热分析 王亮, 邹苑楠, 蒋小华, 史永发 (500)
 TATB 基 PBX 及其改性配方的蠕变性能 林聪妹, 刘世俊, 涂小珍, 黄忠, 李玉斌, 潘丽萍, 张建虎 (506)
 药型罩曲率半径对周向 MLEFP 成型的影响 尹建平, 王志军, 熊永家, 付璐, 李玉文 (512)
 绕丝可燃药筒吸湿性及其对燃烧性能的影响 贾昊楠, 路桂娥, 陈明华, 安振涛, 江劲勇 (517)
 含 FOX-7 发射药的低压燃烧性能及力学性能 王锋, 刘国涛, 张远波, 郑双, 刘少武, 姚月娟, 赵瑛 (522)

◆ 综述

- 激光冲击起爆药关键技术研究进展 王猛, 何碧, 蒋明 (527)
 促进硼颗粒点火和燃烧的方法的研究进展 席剑飞, 刘建忠, 李和平, 汪洋, 张彦威, 周俊虎, 岑可法 (533)
 有限空间内部爆炸研究进展 胡宏伟, 宋浦, 赵省向, 冯海云 (539)

◆ 研究快报

- 叠氮功能化的碳纳米管的制备与表征(英) 纪晓唐, 葛忠学, 刘庆, 李陶琦, 卜建华, 徐敏, 毕福强 (547)
 立方烷-1,4-二甲酸二甲酯的合成与表征 刘庆, 刘玲, 毕福强, 苏海鹏, 葛忠学, 汪伟, 刘愆, 纪晓唐 (549)
 1,2,3,4-四嗪-1,3-二氧化物的合成新工艺(英) 张伟伟, 赵秀秀, 林智辉, 庞思平, 孙成辉, 李生华 (552)
 CL-20/DNB 共晶炸药的制备与表征 王玉平, 杨宗伟, 李洪珍, 王建华, 周小清, 张祺 (554)

◆ 含能快递

- (556)

◆ 读者·作者·编者

中国兵工学会火工烟火专业委员会第十七届学术年会在宁夏银川召开(413) 更正(428)

第5期**◆ 计算含能材料**

- 三类炸药晶体冲击引发分解机理的从头算分子动力学研究 朱卫华, 黄 辉, 黄亨建, 肖鹤鸣 (557)
不同温度下 PETN 晶体感度判别和力学性能预测的 MD 研究 刘冬梅, 肖继军, 朱 伟, 肖鹤鸣 (563)
季戊四醇四硝酸酯及其结构相似物的爆轰性能和热解机理的理论研究 杨俊清, 王桂香, 高 贫, 贡雪东 (570)
新型绿色起爆药硝氨基四唑钙(Ⅱ)五水化合物的晶体结构 佟文超, 王士卫, 武碧栋, 杨 利, 张同来 (578)
RDX 晶体形貌的分子模拟与预测 陈 刚, 王风云 (583)
HMX 溶液结晶的分子动力学模拟 于海利, 段晓惠, 谭学蓉 (589)
NG 在聚氨酯中扩散性能的分子动力学模拟 王 晓, 姚大虎, 白森虎, 汪存东, 赫玉欣, 张玉清 (594)
1,5-二氨基四唑的异构化合成动力学 何 飘, 张建国, 满田田, 王 昆, 张绍文 (599)
VLWR 程序计算 CHNO 炸药爆轰性能碳相态的选择 魏贤凤, 龙新平, 韩 勇 (604)
硝基二唑炸药爆炸参数的经验计算(Ⅱ) 王 军, 景 梅, 张晓玉, 马 卿, 李金山, 舒远杰 (609)
1,5-二叠氨基-3-硝基-3-氮杂戊烷溶解度参数的估算与测定
..... 姬月萍, 高福磊, 韩 瑞, 陈 斌, 汪营磊, 刘卫孝, 刘亚静, 姚逸伦 (612)
常见炸药分子的溶剂化效应 纪春亮, 李 杰, 罗运军, 张朝阳 (616)
爆炸载荷下装甲车辆的动态响应分析 鲁向辉, 周春桂, 王志军, 张 明, 段嘉庆 (624)
计算机模拟混合炸药分子间作用的研究进展 钱 文, 舒远杰 (629)

◆ 研究论文

- 不稳定含能材料 1-氨基-1-肼基-2,2-二硝基乙烯的包合研究 赵冬梅, 张国防, 毕富强, 樊学忠, 赵凤起 (638)
TANPyO 及其金属配合物的合成与性能 刘进剑, 刘祖亮, 蔺向阳, 成 健, 方 东 (644)
PBX-2 炸药加热条件下燃烧转爆轰特性 代晓淦, 王 娟, 文玉史, 黄毅民, 戴明鸿 (649)
75 °C 下 TATB 基高聚物粘结炸药爆轰性能 涂小珍, 李 伟, 韦兴文, 卢孝军 (653)
梳状靶法研究爆轰驱动全预制破片的飞行规律 杨桂红, 王广军, 龚晏青, 孙永强 (656)
基于过载冲击下的针刺延期火工品性能 张周梅, 王培勇, 申依林, 张 畔, 王国强, 贾玉馨, 徐拴劳, 樊龙龙 (660)
几种含稀土元素烟火药剂的燃烧光谱分布 李学军, 丛晓民, 杜志明, 赵家玉 (664)

◆ 综述

- 含能硝基胍衍生物的研究进展 张光全, 刘晓波, 黄 明 (668)
发射药动态力学性能的研究进展 陈言坤, 罗兴柏, 甄建伟, 张玉令 (675)

◆ 研究快报

- 孔隙率对 PBX 热导率影响的数值模拟 韦兴文, 李 明, 周筱雨, 黄 忠 (681)
硝化棉的抗静电性能 李 怡, 李兆乾, 黄洪驰, 裴重华 (684)
2-偕二硝甲基-5-硝基四唑的合成与性能 张 敏, 葛忠学, 毕福强, 许 诚, 刘 庆, 李陶琦 (688)
PBAMO/TGAP 基 A_nB 星型 ETPE 的合成与性能研究 张志刚, 卢光明, 莫洪昌, 粟 磊, 姚逸伦, 刘亚静 (691)
RDX 单晶的精密加工 周小清, 李洪珍, 刘佳辉, 张 祺, 徐 容, 杨宗伟, 蓝林钢 (693)
◆ 含能快递 (696)

◆ 读者·作者·编者

《固体推进剂配方优化设计》新书简介 (663)

第 6 期**◆ 研究论文**

- 3,3'-二(*N*-羟基偕胺肟基)二呋咱基醚合成及歧化反应 … 翟连杰, 王伯周, 霍 欢, 李 辉, 李亚南, 黄新萍, 刘 宁 (697)
 2,4-二硝基咪唑二甲基铵盐的制备及晶体结构 ……………… 景 梅, 舒远杰, 王 军, 张晓玉, 马 娴, 黄奕刚 (702)
 精制对5,7-二氨基-4,6-二硝基苯并氧化呋咱性能的影响 ……………… 董 岩, 刘祖亮 (706)
 ANPyO 及其 Cr(Ⅲ) 和 Zn(Ⅱ) 含能配合物的制备及催化性能 ……………… 刘进剑, 刘祖亮, 成 健, 方 东 (711)
 5H-[1,2,3]三唑并[4,5-c]呋咱及其含能衍生物的合成 … 李祥志, 王伯周, 李亚南, 李 辉, 周 诚, 张叶高, 廉 鹏 (717)
 2,4,6-三硝基-3,5-二氨基-N-(1,2,4-三唑-4)-苯胺的合成 ……………… 徐海凤, 王 娟, 李永强, 张 静, 周新利 (721)
 1-(2',4',6'-三硝基苯基)-4,5-二硝基咪唑的合成与性能(英) ……………… 侯可辉, 刘祖亮 (726)
 1,2-二硝基胍的合成及热性能 ……………… 贾欢庆, 胡炳成, 金兴辉 (730)
 火焰法制备 Al/MoO₃ 纳米片阵列的影响因素 ……………… 赵 娜, 沈金朋, 李 瑞, 杨光成, 黄 辉 (734)
 机械研磨制备球形超细 CL-20 ……………… 张 朴, 郭学永, 张静元, 王正宏, 李世伟 (738)
 Al/HTPB 含能复合粒子的制备及表征 ……………… 刘松松, 叶明泉, 韩爱军, 陈 昕, 潘功配 (743)
 Al/Ni 和 Al/Ti 纳米多层薄膜制备与表征 ……………… 李东乐, 朱 朋, 付 帅, 沈瑞琪, 叶迎华, 华天丽 (749)
 TATB 基 PBX 与硬质聚氨酯泡沫塑料的相容性 ……………… 左玉芬, 陈 捷, 熊 鹰, 池 钰, 王 薇, 郝晓飞 (754)
 硝化纤维含能材料热物性参数的测量与分析 ……………… 彭亚晶, 王 勇, 刘玉强, 张 伟, 杨延强 (760)
 不同模型下 HMX 晶体结构和性能的 MD 研究 … 刘冬梅, 肖继军, 陈 军, 姬广富, 朱 伟, 赵 锋, 吴 强, 肖鹤鸣 (765)
 不同分子量 HTPB 与 TDI 的固化反应动力学 ……………… 陈春燕, 王晓峰, 高立龙, 郑亚峰 (771)
 RDX 基含铝炸药不同尺寸的圆筒试验及数值模拟 ……………… 沈 飞, 王 辉, 袁建飞, 田清政, 杨 凯 (777)
 甲基硝基胍基低共熔物的熔融动力学研究 ……………… 陈 玲, 徐瑞娟, 徐 涛, 邓建国, 王新峰, 黄伯勇, 舒远杰 (781)
 短切纤维对 RDX/TNT 熔铸炸药的力学改性 ……………… 郑保辉, 王平胜, 罗 观, 黄 勇 (786)
 药片剪切试验中 PBX-2 炸药的响应特性 ……………… 代晓淦, 王 娟, 黄 谦, 黄风雷, 向 永, 郑 雪 (791)
 叠氮硝胺发射药的燃烧性能调控技术 ……………… 黄振亚, 贾永杰, 崔鹏腾, 范建芳 (795)
 粒径和晶形对硼颗粒点火燃烧特性的影响 ……………… 敦 文, 周俊虎, 刘建忠, 杨卫娟, 汪 洋 (800)
 端面效应对楔形罩切割器射流成型影响的试验和数值模拟 ……………… 武双章, 顾文彬 (806)

◆ 综述

- 浇注 PBX 力学性能的研究进展 ……………… 唐明峰, 李 明, 蓝林钢 (812)

◆ 研究快报

- 螺压硝胺改性双基推进剂对机械刺激的安全性分析 ……………… 刘所恩, 赵效民, 赵美玲, 张景林, 邹伟伟, 吕春玲 (818)
 3,3'-二(四唑-5-基)-4,4'-偶氮呋咱及其含能离子盐的合成及热性能 ……………… 李 辉, 于倩倩, 王伯周, 来蔚鹏, 葛忠学, 李亚南, 刘 宁 (821)
 三(对硝基苯基氧甲基)硝基甲烷的合成及热行为 ……………… 陆春华, 王 娟, 周新利 (825)

◆ 读者·作者·编者

- 《含能材料》征订启事(701) 向审稿人致谢(716) 向作者致谢(716) 欢迎订阅 2014 年《聚氨酯工业》(753) 2013 国际推进剂、炸药、烟火技术秋季研讨会在蓉成功举办(759) 中国化学会第六届全国化学推进剂学术会议在中国酒泉卫星发射中心成功召开(764)
 第二届全国危险物质与安全应急技术研讨会在蓉召开(彩插)

- 2013 年(第 21 卷)总目次 ……………… (· 1 · - 16 ·)

**ANNUAL CUMULATIVE CONTENTS OF
CHINESE JOURNAL OF ENERGETIC MATERIALS (Vol. 21, 2013)**

No. 1

Article

- | | | |
|----|--|---|
| 1 | QI Xiu-fang, DENG Zhong-yan, WANG Dun-ju,
WANG Qian, CHENG Guang-bin, LÜ Chun-xu | Preparation of Reduced-sensitivity HMX by Recrystallization in the Presence of Ionic Liquids |
| 7 | ZHANG Jing, WANG Juan,
XU Hai-feng, ZHOU Xin-li | Synthesis and Thermal Decomposition Kinetics of Hexanitroazobenzene |
| 12 | ZHAO Xiao-feng, CHENG Jian, LIU Zu-liang | Nitration of 2,6-Diacetamidopyrazine-1-oxide with N ₂ O ₅ Catalyzed by [MIMPS][HSO ₄] |
| 16 | HOU Ke-hui, LIU Zu-liang,
ZHANG Hua-yan, CHENG Jian | Synthesis and Performance of Ammonium 2,4,5-Trinitroimidazole |
| 19 | LI Ya-nan, CHANG Hai-bo, WANG Bo-zhou,
WANG You-bing, YANG Wei, LIAN Peng,
LI Hui, ZHANG Zhi-zhong | Synthesis and Reaction Mechanism of 1,2,3-Triazine Compound |
| 25 | HUANG Yong, ZHENG Bao-hui,
XIE Zhi-yi, WANG Dong-lei | Pressured Solidification Process of Melt-cast Explosive |
| 30 | YUAN Jun-ming, LIU Yu-cun, CAO wen-jun | Numerical Simulation of Drop Weight Impact Ignition on Composite Explosive |
| 35 | CHEN Li-kui, SHENG Di-lun,
YANG Bin, ZHU Ya-hong, XU Min-Hao,
PU Yan-li, LI Zhao-Xin | Effects of Carbon Nanotubes and Carbon Black on Sensitivity Performances of BNCP |
| 39 | SONG Xue, WANG Jun,
YANG Guang-cheng, NIE Fu-de | Synthesis and Characterization of Al/CuO Nanothermite |
| 44 | ZHANG Xiao-lian, ZHANG Jing-lin, WANG Jin-ying | Experimental Study on Effect of Modifier PVP on Crystal Growth of HMX |
| 49 | SUN Tian-tian, LI Gang | Reaction Kinetics of Synthesizing 2-Azido- <i>N,N</i> -dimethylethylamine Hydrochloride in Aqueous Solution |
| 53 | CHEN Zhu, ZHANG Pei,
ZHANG Xiao-hong, CHEN Xue-li,
WANG Ying, CAO Lei, FAN Ming-hui | Application of ZrO ₂ and ZrB ₂ in Screw Extrusion Double-based Propellants |
| 57 | CHEN Tao, ZHANG Xian-rui, WANG Yuan-yuan,
HUANG Ling, XIAO Jin-wu | Effect of LiF Coating on the Thermal Oxidation Characteristics for Boron Powder |
| 61 | CHENG Xin-li, ZHAO Xiao-bin, LI Jun | Effect of Al on Sensitivity of NEPE Propellant |
| 64 | ZHAO Yi-bo, LUO Yun-jun, ZHANG Chi | Performances of the Binder Film of BAMO-r-GAP Copolymer/N100/IPDI Curing System |
| 68 | WANG Ting-hui, DUAN Zhu-ping,
SU Jian-jun, TIAN Qing-zheng | Application of Generalized C-J Condition at Detonation of Aluminized Explosives |

75 LIU Yun, WANG Hao, TAO Ru-qi, ZHU De-long	Effects of Ignition Process on the Internal Ballistics of Small-size Solid Rocket Motor
80 CHEN Kui, LI Wei-bing, WANG Xiao-ming, HAN Yu, PENG Zheng-wu	Orthogonal Design Configuration Parameters of Dual Mode Warheads
85 XIA Hong-bing, LI Lei, MA Hong-hao, SHEN Zhao-wu, HUANG Shi-hua	Application of the Multi-directional Linear Cumulative Cutter
92 WANG Peng, WEI Xiao-an, HE Wei-dong	Detonation Performance of Perfusion Explosive Containing SF-3 Double-based Propellants Energetic Materials
97 HU Song-qi, LIU Kai, WANG Peng-fei, XU Qiu-li, ZHOU Yan-xing	Uncertainty Analysis of Heat Loss Rate by Constant Volume Burner Method
103 WANG Xuan-yu, WANG Li-na	Principle and Optimized Parameters for Destroying CS by an Incinerator

Review

108 CHEN Ling, SHU Yuan-jie, XU Rui-juan, XU Tao, WANG Xin-feng	Review on Energetic Eutectic
116 DING Ke-wei, LI Tao-qi, GE Zhong-xue, LIU Qing	Review on Synthesis of Polyazides
121 HUA Wen-long, YE Zhi-wen	Progress in Synthesis and Performance of Energetic Triazolium Salts as TNT Replacements
126 MA Cong-ming, LIU Zu-liang, YAO Qi-zheng	Progress in Synthesis of 2,4,6-Trinitro-2,4,6-triazacyclohexanone

Letter

131 WANG Bo-zhou, LI Xiang-zhi, LI Hui, HUO Huan, ZHOU Yan-shui, FAN Xue-zhong, LI Ji-zhen	A Novel Synthesis Route of [1,2,5]Oxadiazolo[3,4-e][1,2,3,4]tetrazine-4,6-Di-N-oxide
133 MA Qing, WANG Jun, ZHANG Xiao-yu, SHU Yuan-jie	Synthesis and Property of 2,4,6-Tri-methylbenzenesulfonic Hydroxylamine

Energetic Express

No. 2 20 Anniversary Celebration Issue

Invited Review

137 ZHANG Tong-lai, WU Bi-dong, YANG Li, ZHOU Zun-ning, ZHANG Jian-guo	Recent Research Progresses in Energetic Coordination Compounds
152 XIAO He-ming, ZHU Wei-hua, XIAO Ji-Jun, WANG Gui-xiang, LIU Dong-mei	“Quantum Explosive Chemistry” and its Continuation——Comment on “Prefaces” and “Forewords” of Several Academic Works
157 CAO Duan-lin, LI Ya-jin, DU Yao, WANG Jian-long, LI Yong-xiang	Review on Carriers for Melt-cast Explosives

166	SHU Yuan-jie, LI Hua-rong, XIONG Ying, ZHOU Yang, QIAN Wen	Some Problems in Theoretical Design of Energetic Materials
173	XIAO Xiao, GE Zhong-xue, LIU Qing, XU Cheng, WANG Wei, SU Hai-peng, BI Fu-qiang	Progress in Oxidation-Coupling Reaction of Nitrogen-Containing Heterocyclic Compounds
Article		
180	HU Rong-zu, MA Hai-xia, YAN Biao, ZHANG Hai, HAN Lu, GAO Hong-xu, ZHAO Feng-qi, YAO Er-gang, ZHAO Hong-an	A Method of Computing/Determining the Arrhenius/non-Arrhenius Kinetic Parameters of the Exothermic Decomposition Reaction of Energetic Materials from Data of DSC Curves at Different Heating Rate
194	LU Ming, ZHAO Guo-zheng, NIE Fu-de, LI Jin-shan	Designs and Synthetic Routes of Nitramine Explosives Containing Pyridine/Aminobenzene Ring
200	LI Ming, CHEN Tian-nan, PANG Hai-yan, HUANG Ming	Ruptures and Mesoscale Fracture Behaviors of RDX Crystals
205	LAN Qiong, DAI Bin, YANG Bai-feng, LI Jing-ming, HE Jian-hua	Healing of Cracks in PBX by Thermal Pressure Aging Treatment
209	LIU Suo-en, ZHOU Wei-liang, PAN Bao, ZHAO Mei-ling, ZOU Wei-wei	Application of PDADN in Screw Extruded Nitramine Modified Double-base Propellant
213	LIU Wei, LI Yu-chuan, LI Xiao-tong, YANG Yu-zhang, LIN Qiu-han, PANG Si-ping	Theoretical Computation of 5-Aminotetrazolium Nitroformate
217	ZHAO Guo-zheng, LU Ming	Structure and Synthetic Feasibility of Pseudo-benzene N₆
222	LIU Pan, XU Zhi-bin, WANG Bo-zhou, GE Zhong-xue, WANG Peng, MENG Zi-hui	Synthesis of 2-(Dinitromethylene)-1,3-diazacyclopentane (DNDZ) Catalyzed by Magnesium Ion
226	GAO Li, YANG Hong-wei, WU Bo, CHENG Guang-bin, Lü Chun-xu	New Synthetic Route of Five Furazan Derivatives
230	JIN Miao-miao, LUO Yun-jun	Preparation and Characterization of NC/Al Nano-composite Energetic Materials
235	ZHU Zi-qiang, CHEN Jin, QIAO Zhi-qiang, HUANG Bing, YANG Guang-cheng, NIE Fu-de	Preparation and Characterization of Direct Write Explosive Ink Based on CL-20
239	DU Shi-guo, YAN Jun, WANG Ming-qiu, WANG Bin	Preparation of AC/TiO₂ Composite Particles at Low Temperature and its Application in Degradation of TNT Wastewater
244	ZHOU Ming-rui, LI Zhi-min, ZHANG Tong-lai, WU Bi-dong, YANG Li, ZHANG Jian-guo, ZHOU Zun-ning	Electrostatic Accumulation Test of Initiating Explosives
249	PEI Hong-bo, JIAO Qing-jie, NIE Jian-xin	Numerical Study on Water Jet Formation of Semi-ring Shaped Charge
253	ZANG Li-wei, YIN Jian-ping, WANG Zhi-jun	Numerical Simulation of a Dual-mode EFP Warhead
Special Contribution		
257	YANG-Rong-ji, CAI Hua-qiang, TIAN Li, JIANG Kai, HUANG Hui	Ammonium Perchlorate Oxidation for Removal of Organic Templates to form SBA-15 Type Material
262	TONG Da-ming, CAI Shui-zhou, XIE Chang-sheng, XIA Xian-ping, ZENG Da-wen	Reaction of Al Powder and Water Visa Electrochemistry Technology

268 CHENG Yang-fan, LIU Rong, MA Hong-hao,
SHEN Zhao-wu

Hydrogen Storage Materials Applied in Emulsion Explosives

Letter

273 WU Min-jie, CHEN Shu-sen, JIN Shao-hua, LI Li-jie

A New Method to Synthesize 3,3'-Diamino-4,4'-azoxyfurazan (DAOAF)

276 JIA Kai, LIU Zu-liang, HOU Ke-hui

Synthesis and Thermal Behavior of 2-(2,4,6-Trinitro)phenylamino-4-nitroimidazole

278 LIU Lin-lin, HE Guo-qiang, WANG Ying-hong

RDX/HMX Effects on Combustion Performance of Boron-based Fuel-rich Propellant

279 ZHANG Wei-bin, DAI Bin, YANG Xue-hai, TIAN Yong,
XIAO Li, YANG Cun-feng, YANG Reng-cai

Microstructures Characterization of TATB Based Granules by High Resolution X-ray Computed Tomography

No. 3

Article

281 MAN Tian-tian, SHANG Jing, FENG Jin-ling,
ZHANG Jian-guo, SHU Yuan-jie, ZHANG Tong-lai,
ZHOU Zun-ning

Theoretical Study of *s*-Tetrazine Bi-substituted by Amido, Hydrozino and Azido Groups

289 JIA Si-yuan, ZHANG Hai-hao, WANG Bo-zhou,
ZHOU Yan-shui, HUO Huan

Synthesis and Characterization of 3,4-Bis-(3'-aminofurazal-4'-yl)-furazan (BATF)

294 DENG Ming-zhe, ZHOU Jie-wen, WANG Bo-zhou,
YE Zhi-hu, TIAN Zhan-huai

Preparation Improvement of LLM-105 Explosive

297 JIANG Qiu-li, WANG Hao, LUO Yi-ming, WANG Wei,
XIE Zhong-yuan, GAO Jie

Thermal Behaviors of 3,4-Dinitrophyrazole and its Compatibility with Some Explosive Component Materials

301 ZHOU Xiao-qing, LI Hong-zhen, XU Rong,
WANG Shu-cun, HUANG Ming

Growth-induced Dislocation of RDX Single Crystal

306 TU Xiao-zhen, ZHANG Bo, WEI Xing-wen,
WANG Wei-xin

Mechanical Properties of TATB Based PBX at High Temperature

310 JI Xiao-tang, GE Zhong-xue, LIU Qing, LI Tao-qi,
DING Ke-wei, LUAN Jie-yu

Electrochemical Synthesis and Characterization of Nitrogen Trichloride

313 LU Xian-ming, JI Yue-ping, LI Na, MO Hong-chang,
LI Lei, YAO Yi-lun, XING Ying

Synthesis and Characterization of Hydroxy-terminated Glycidyl Azide-*b*-(3-azidomethyl-3-methyloxetane) Copolymers

319 HU Song-qi, CHEN Jing, WU Su-li, DENG Zhe

Thermal Decomposition Characteristics of LS-Based Propellant

325 GONG Jian-liang, LIU Pei-jin, LI Qiang

Nonlinear Constitutive Relation of HTPB Propellant Based on the First Law of Thermodynamics

330 LI Gao-chun, LIU Zhu-qing, ZHANG Xuan, QIU Xin,
SUI Yu-tang

Mesoscale Failure in Solid Propellant by Coupling SEM and Digital Image Correlation Method

334 QI Xiao-fei, LI Jun-qiang, ZHANG Xiao-hong,
LI Xiao-jiang, ZHANG Wei, LIU Peng

Influence of Energetic Potassium Salt as Eliminated-flame Additive on Performance of Nitramine Modified Double Base Propellant

339	LIANG Xiao-lei, LIU Cai-lin, REN Xian-yan, YANG Hai-jun, WANG Mian, WANG Yong, RAN Juan-ping	Solution Phase Chemical Reduction Synthesis and Characterization of Aluminum Nanoparticles
343	YAO Yue-juan, LIU Shao-wu, WANG Feng, YU Hui-fang, LI Da, CHEN Teng	Effect of Nitroglycerine Content on Combustion Progressivity of Modified Single Base Propellant
347	ZHAO Bao-ming, ZHAO Hong-li, YANG Li-xia, LI Xian, CHEN Xiao-ming, ZHAO Ying, ZHANG Heng, JING Jian-wei, LIU Lai-dong	A Measurement Method for Gun Muzzle Smoke Aggregates of Propellants
351	JIANG Xin-guang, WANG Hai-nan, LIU Wei-qi, JIANG Zhi-bao, LIU Yu-zi	Numerical Calculation of Temperature Character of Main Change in the Powered Initiators Ignition Process
357	HUANG Wen-yao, ZHANG Kai, WU Hong-bo, HU Xin, WANG Dao-yang, SHEN Xia-xia, YU Yan	Preparation and Performance of Low Detonation Velocity Emulsion Explosives Used in Explosive Welding
363	HUANG Xin-ping, CHANG Pei, WANG Bo-zhou, LI Pu-rui, WANG Min-chang, FAN Xue-zhong, FENG Hong-lian	Recycling Use of Waste Acids in Preparation of 3-Nitro-1,2,4-triazol-5-one
367	WANG Hui-e, SUN Ji-lin, YAN Shi-long, ZHANG Xue-cai	Waste-water Treatment of Diazodinitrophenol by White Rot Fungus-peat

Review

372	LIU Jia-hui, LIU Shi-jun, HUANG Ming, LI Hong-zhen, NIE Fu-de	Progress on Crystal Damage in Pressed Polymer Bonded Explosives
379	HUANG Xu, XIA Zhi-xun, HUANG Li-ya, HU Jian-xin	Progress in Combustion Characteristics of Mg Particles in Oxidation Gases
387	LI Yong, ZHOU Bin, QIN Zhi-chun, SHEN Rui-qi, CHEN Fei, DU Pei-kang, JIA Xin, WEN Lei-ming, ZHANG Jun-de	Development of Composite Semiconductor Bridge Technique for Electrical-explosive Device

Letter

394	WU Jin-ting, ZHANG Jian-guo, LI Jing-yu, ZHANG Tong-lai, ZHOU Zun-ning, YANG Li	Crystal Structure of a Novel Nitrogen-rich Energetic Compound $Zn(5-NATZ)_2(H_2O)_4$
396	LI Hui, WANG Bo-zhou, LAI Wei-peng, WANG Min-chang, BI Fu-qiang, GE Zhong-xue	Synthesis of 3,4-Dinitrofuran
398	HUO Huan, WANG Bo-zhou, LIAN Peng, LAI Wei-peng, GE Zhong-xue, ZHANG Ye-gao	Synthesis of 6-Nitroimino-4,8-dinitro-5,6,7,8-tetrahydro-4<i>H</i>-imidazo[4,5-<i>e</i>]furazano[3,4-<i>b</i>]pyrazine

Energetic Express

No. 4

Article

409	CHEN Jie, DUAN Xiao-hui, PEI Chong-hua	Preparation and Characterization of HMX/AP Co-crystal
414	QI Xiu-fang, HE Jun-rong, CHENG Guang-bin, LU Chun-xu	Preparation of Reduced Sensitivity RDX by Direct Nitrolysis Method in the Presence of 1-Methyl-imidazole Nitrate

419	SHI Fei, WANG Qing-fa	Nitration of Epichlorohydrin with N₂O₅
423	ZHOU Xin-long, LIU Zu-liang, CHENG Jian, SU Qiang, HAO Yao-gang, HU Bing-cheng	A Refining Method of 2,6-Diamino-3,5-dinitropyridine-1-oxide
429	LI Lei, CHI Yu, ZHANG Yong, ZHAO Ting-xing, LI Hong-bo	Synthesis, Characterization and Crystal Structure of 4,4'-Bis-1,2,4-triazole
434	JIA Chuan-qiang, SONG Tao, LIU Xiao-ya, ZHANG Zhen-wei, JIANG Gang	Absorption Characteristics and Simulation of TATB Near Terahertz
439	ZHANG Gong-zheng, XIANG Xing, FANG Yong-xi, WANG Xiao-chuan	Synthesis and Property of Energetic Binder 2,2-Dinitropropyl Acrylate-Vinyl Acetate Copolymer
443	BI Fu-qiang, LI Ji-zhen, XU Cheng, FAN Xue-zhong, GAO Hong-xu, KANG Bing, GE Zhong-xue, LIU Qing	Synthesis and Thermal Decomposition Properties of 4,5-Bis(1<i>H</i>-tetrazol-5-yl)-1<i>H</i>-imidazole
449	LI Ya-nan, WANG Bo-zhou, LUO Yi-fen, YANG Wei, WANG You-bing, LI Hui	Synthesis of 3,6-Dinitropyrazolo[4,3-<i>c</i>]pyrazole (DNPP) in Hectogram scale and Crystal Structure of DNPP · H₂O
455	ZHANG Shu-juan, CHEN Xiao-jian, WU Wan-e, WANG Xuan-jun	Degradation of Unsymmetrical Dimethylhydrazine with Microwave Enhanced Fenton
460	OUYANG Di-hua	Dynamic Model of Bubble Induced by the Interaction Between Pyrotechnic Composition Combustion Particles and Water
464	CAO Yong-jie, YU Yong-gang, YE Rui, ZHOU Yan-huang, YAO Yuan	Numerical Simulation of Combustion Flow Field Characteristics of Base Bleed Propellant Under Transient Pressure-release
469	JIA Xian-zhen, WANG Hao, WANG Jian-ling	Mesoscale Simulation of Effective Elastic Properties of Explosive
473	WANG Min-chang, BI Fu-qiang, ZHANG Gao, LUAN Jie-yu, Xu Min, NING Yan-li, FAN Xue-zhong	NMR Characterization and Theoretical Investigation of DNTF
479	LAI Wei-peng, LIAN Peng, YU Tao, CHEN Xiao-fang, QIU Shao-jun, CHANG Hai-bo	Theoretical Study on Solvent Effect on Cycloaddition Reaction: HN₃ + NH₂CN → 5-AT
485	GUO Xin, NAN Hai, QI Xiao-fei, TIAN Xuan, NIU Yu-lei, ZHANG Jun-ping	Molecular Dynamics Simulation on Mechanical Properties of RDX and HMX Crystals and Their Impacting Load Response
490	WEN Mao-ping, TANG Wei, ZHOU Xiao-yu, PANG Hai-yan, ZHU Feng-yun	Tensile Mechanical Properties of Brittle Explosives Evaluated by Arc Compress Head Brazilian Test
495	XIAO Wei, LI Liang-liang, WANG Jiang-ning, SU Jian-jun, WANG Shi-ying, DONG Shu-nan, QU Ke-peng	Mechanical Properties for DNTF/RDX-CMDB Propellants at Low Temperature
500	WANG Liang, ZHOU Yuan-nan, JIANG Xiao-hua, ZHI Yong-fa	Thermal-electric Analysis of Small-scale Copper Bridge Foils Excited by Short Pulse Currents
506	LIN Cong-mei, LIU Shi-jun, TU Xiao-zhen, HUANG Zhong, LI Yu-bin, PAN Li-ping, ZHANG Jian-hu	Creep Properties of TATB-based Polymer Bonded Explosive and its Modified Formulation
512	YIN Jian-ping, WANG Zhi-jun, XIONG Yong-jia, FU Lu, LI Yu-wen	Influence of Liner Curvature Radius on Formation of Circumferential Multiple Linear Explosively Formed Penetrators
517	JIA Hao-nan, LU Gui-e, CHEN Ming-hua, AN Zhen-tao, JIANG Jin-yong	Hygroscopicity and its Effect on Combustion Performance of Winding Combustible Cartridge Case
522	WANG Feng, LIU Guo-tao, ZHANG Yuan-bo, ZHENG Shuang, LIU Shao-wu, YAO Yue-juan, ZHAO Ying	Combustion and Mechanical Performance of Gun Propellant Containing FOX-7 at Low Pressure

Review

- 527 WANG Meng, HE Bi, JIANG Ming **Review on Key Technologies of Laser-driven Miniflyer System**
- 533 XI Jian-fei, LIU Jian-zhong, LI He-ping, WANG Yang, ZHANG Yan-wei, ZHOU Jun-hu, CEN Ke-fa **Progress in Methods of Promoting the Ignition and Combustion of Boron Particles**
- 539 HU Hong-wei, SONG Pu, ZHAO Sheng-xiang, FENG Hai-yun **Progress in Explosion in Confined Space**

Letter

- 547 JI Xiao-tang, GE Zhong-xue, LIU Qing, LI Tao-qi, BU Jian-hua, XU Ming, BI Fu-qiang **Preparation and Characterization of Azide-Functionalized Carbon Nanotubes**
- 549 LIU Qing, LIU Ling, BI Fu-qiang, SU Hai-peng, GE Zhong-xue, WANG Wei, LIU Qian, JI Xiao-tang **Synthesis and Characterization of Dimethyl Cubane-1,4-dicarboxylate**
- 552 ZHANG Wei-wei, ZHAO Xiu-xiu, LIN Zhi-hui, PANG Si-ping, SUN Cheng-hui, LI Sheng-hua **A Convenient Synthesis of Benzo-1,2,3,4-tetrazine-1,3-dioxide**
- 554 WANG Yu-ping, YANG Zong-wei, LI Hong-zhen, WANG Jian-hua, ZHOU Xiao-qing, ZHANG Qi **Preparation and Characterization of CL-20/DNB Cocrystal**

Energetic Express**No. 5****Special Contribution**

- 557 ZHU Wei-hua, HUANG Hui, HUANG Heng-jian, XIAO He-ming **Initial Decomposition Mechanisms of Three Explosive Crystals under Shock Loading by Ab Initio Molecular Dynamics**
- 563 LIU Dong-mei, XIAO Ji-jun, ZHU Wei, XIAO He-ming **Sensitivity Criterion and Mechanical Properties Prediction of PETN Crystals at Different Temperatures by Molecular Dynamics Simulation**
- 570 YANG Jun-qing, WANG Gui-xiang, GAO Pin, GONG Xue-dong **Theoretical Study on Detonation Performances and Pyrolysis Mechanism of Pentae-rythritol Tetranitrate and its Analogue Compounds**
- 578 TONG Wen-chao, WANG Shi-wei, WU Bi-dong, YANG Li, ZHANG Tong-lai **Crystal Structure of a Novel Green Initiating Explosive Calcium Nitriminotetrazolate Pentahydrate**
- 583 CHEN Gang, WANG Feng-yun **Molecular Modeling and Prediction of RDX Crystal Morphology**
- 589 YU Hai-li, DUAN Xiao-hui, TAN Xue-rong **Molecular Dynamics Simulation of Crystallization of HMX Solution**
- 594 WANG Xiao, YAO Da-hu, BAI Sen-hu, WANG Cun-dong, HE Yu-xin, ZHANG Yu-qing **Molecular Dynamics Simulation of the Diffusion Behaviors of NG in Polyurethane**
- 599 HE Piao, ZHANG Jian-guo, MAN Tian-tian, WANG Kun, ZHANG Shao-wen **Theoretical Studies on Kinetics of Isomerization Reaction for 1,5-Diamino-tetrazole**

604	WEI Xian-feng, LONG Xin-ping, HAN Yong	Selection of Carbon Phase in Calculation of Detonation Performance by VLWR Program for CHNO Explosives
609	WANG Jun, JING Mei, ZHANG Xiao-yu, MA Qing, LI Jin-shan, SHU Yuan-jie	Empirical Calculation of the Explosion Parameters of Nitrodiazole Explosives (II)
612	JI Yue-ping, GAO Fu-lei, HAN Rui, CHEN Bin, WANG Ying-lei, LIU Wei-xiao, LIU Ya-jing, YAO Yi-lun	Estimation and Determination of the Solubility Parameter of 1,5-Diazido-3-nitrazapentane
616	JI Chun-liang, LI Jie, LUO Yun-jun, ZHANG Chao-yang	Solvation Effect on Conventional Explosives
624	LU Xiang-hui, ZHOU Chun-gui, WANG Zhi-jun, ZHANG Ming, DUAN Jia-qing	Dynamic Response Analysis of an Armored Vehicle under Explosive Loading
629	QIAN Wen, SHU Yuan-jie	Progress of Computer Simulation for Intermolecular Interactions in Composite Explosive

Article

638	ZHAO Dong-mei, ZHANG Guo-fang, BI Fu-qiang, FAN Xue-zhong, ZHAO Feng-qi	Study on Inclusion of Unstable Energetic Material 1-Amino-1-hydrazino-2,2-dinitroethylene
644	LIU Jin-jian, LIU Zu-liang, LIN Xiang-yang, CHENG Jian, FANG Dong	Synthesis and Properties of TANPyO and its Metal Complexes
649	DAI Xiao-gan, Wang Juan, WEN Yu-shi, Huang Yi-min, DAI Ming-hong	Deflagration to Detonation Transition Characteristics for Heated PBX-2
653	TU Xiao-zhen, LI Wei , WEI Xing-wen, LU Xiao-jun	Detonation Performance of TATB Based PBX at 75 °C
656	YANG Gui-hong, WANG Guang-jun, GONG Yan-qing, SUN Yong-qiang	Experimental Study on Flying Laws Detonation Driven Precast Fragments by Comb Targets Method
660	ZHANG Zhou-meい, WANG Pei-yong, SHEN Yi-lin, ZHANG Ye, WANG Guo-qiang, JIA Yu-xin, XU Shuan-lao, FAN Long-long	Performance of Stab Delay Initiating Device under Overload Shock
664	LI Xue-jun, CONG Xiao-min, DU Zhi-ming, ZHAO Jia-yu	Combustion Spectra of Pyrotechnic Composites Containing Rare-Earth Elements

Review

668	ZHANG Guang-quan, LIU Xiao-bo, HUANG Ming	Review on Energetic Nitroguanidine Derivatives
675	CHEN Yan-kun, LUO Xing-bai, ZHEN Jian-wei, ZHANG Yu-ling	Review on Dynamical Mechanical Properties of Propellants

Letter

681	WEI Xing-wen, LI Ming, ZHOU Xiao-yu, HUANG Zhong	Numerical Simulation of the Porosity Influence on Thermal Conductivity of Polymer Bonded Explosive
684	LI Yi, LI Zhao-qian, HUANG Hong-chi, PEI Chong-hua	Improvement of Antistatic Ability of Nitrocellulose
688	ZHANG Min, GE Zhong-xue, BI Fu-qiang, XU Cheng, LIU Qing, LI Tao-qi	Synthesis and Properties of 2-Dinitromethyl-5-nitrotetrazole

- 691 ZHANG Zhi-gang, LU Xian-ming, MO Hong-chang,
LI Lei, YAO Yi-lun, LIU Ya-jing **Synthesis and Properties of A_nB Star ETPE Based on PBAMO/TGAP**

- 693 ZHOU Xiao-qing, LI Hong-zhen, LIU Jia-hui, ZHANG Qi,
XU Rong, YANG Zong-Wei, LAN Lin-gang **Precision Machining of RDX Single Crystal**

696 Energetic Express

No. 6

Article

- 697 ZHAI Lian-jie, WANG Bo-zhou, HUO Huan, LI Hui,
LI Ya-nan, HUAGN Xin-ping, LIU Ning **Synthesis and Disproportionation Reactions of 3,3'-Bis (N-hydroxy amidoxime) difurazanyl Ether**
- 702 JING Mei, SHU Yuan-jie, WANG Jun, ZHANG Xiao-yu,
MA Qing, HUANG Yi-gang **Preparation and Crystal Structure of N,N-dimethyl Ammonium Salt of 2,4-Dinitroimidazole**
- 706 DONG Yan, LIU Zu-liang **Effect of Refining on the Properties of 5,7-Diamino-4,6-dinitrobenzenfuroxan**
- 711 LIU Jin-jian, LIU Zu-liang, CHENG Jian, FANG Dong **Synthesis and Catalytic Properties of ANPyO Cr(III) and Zn(II) Energetic Complexes**
- 717 LI Xiang-zhi, WANG Bo-zhou, LI Ya-nan, LI Hui,
ZHOU Cheng, ZHANG Ye-gao, LIAN Peng **Synthesis of 5H-[1,2,3]Triazolo[4,5-c][1,2,5]oxadiazole and Its Energetic Derivatives**
- 721 XU Hai-feng, WANG Juan, LI Yong-qiang, ZHANG Jing,
ZHOU Xin-li **Synthesis of 2,4,6-Trinitro-3,5-diamino-N-(1,2,4-triazole-4)-aniline**
- 726 HOU Ke-hui, LIU Zu-liang **Synthesis and Properties of 1-(2',4',6'-Trinitrophenyl)-4,5-Dinitroimidazole**
- 730 JIA Huan-qing, HU Bing-cheng, JIN Xing-hui **Synthesis and Thermal Properties of 1,2-Dinitroguanidine**
- 734 ZHAO Na, SHEN Jin-peng, LI Rui, YANG Guang-cheng,
HUANG Hui **Preparation and Influence Factors of Al/MoO₃ Nano-arrays via Flame Method**
- 738 ZHANG Pu, GUO Xue-yong, ZHANG Jing-yuan,
WANG Zheng-hong, LI Shi-wei **Preparation of Spherical Ultrafine CL-20 by Mechanical grinding**
- 743 LIU Song-song, YE Ming-quan, HAN Ai-jun, CHEN Xin,
PAN Gong-pei **Preparation and Characterization of Al/HTPB Energetic Composite Particles**
- 749 LI Dong-le, ZHU Peng, FU Shuai, SHEN Rui-qi,
YE Ying-hua, HUA Tian-li **Fabrication and Characterization of Al/Ni and Al/Ti Multilayer Nanofilms**
- 754 ZUO Yu-fen, CHEN Jie, XIONG Ying, CHI Yu, WANG Lin,
HAO Xiao-fei **Compatibility of TATB Based PBX Explosive and Rigid Polyurethane Foam**
- 760 PENG Ya-jing, WANG Yong, LIU Yu-qiang, ZHANG Wei,
YANG Yan-qiang **Measurement and Analysis of Thermal Physical Parameters on Nitrocellulose Energetic Materials**
- 765 LIU Dong-mei, XIAO Ji-jun, CHEN Jun, JI Guang-fu,
ZHU Wei, ZHAO Feng, WU Qiang, XIAO He-ming **MD Simulation on the Structure and Properties of Different Models for HMX Crystal**

771	CHEN Chun-yan, WANG Xiao-feng, GAO Li-long, ZHENG Ya-feng	Effect of HTPB with Different Molecular Weights on Curing Kinetics of HTPB/TDI System
777	SHEN Fei, WANG Hui, YUAN Jian-fei, TIAN Qing-zheng, YANG Kai	Different Diameter Cylinder Tests and Numerical Simulation of RDX based Aluminized Explosive
781	CHEN Ling, XU Rui-juan, XU Tao, DENG Jian-guo, WANG Xin-feng, HUANG Bo-yong, SHU Yuan-jie	Melting Kinetics of Eutectic Based on Methyl-nitroguanidine
786	ZHENG Bao-hui, WANG Ping-sheng, LUO Guan, HUANG Yong	Mechanical Reinforcement on the Melt-cast Explosive of RDX/TNT by Chopped Fibers
791	DAI Xai-gan, WANG Juan, HUANG Qian, HUANG Feng-lei, XIANG Yong, ZHENG Xue	Response Character for PBX-2 Explosive in Shear Test
795	HUANG Zhen-ya, JIA Yong-jie, CUI Peng-teng, FAN Jian-fang	Modulating Technology for Combustion Performance of Azidonitramine Gun Propellant
800	AO Wen, ZHOU Jun-hu, LIU Jian-zhong, YANG Wei-juan, WANG Yang	Effects of Particle Size and Crystalline Form on the Ignition and Combustion Characteristics of Boron Particles
806	WU Shuang-zhang, GU Wen-bin	Experimental and Three-dimensional Numerical Simulation for Influence of End Constraint on Jet Formation of Cuneiform Cover Cutter

Review

812	TANG Ming-feng, LI Ming, LAN Lin-gang	Review on the Mechanical Properties of Cast PBXs
-----	---------------------------------------	---

Letter

818	LIU Suo-en, ZHAO Xiao-min, ZHAO Mei-ling, ZHANG Jing-lin, ZOU Wei-wei, Lü Chun-ling	Safety Performance of Modified Nitramine Double Base Propellant by Screw Extrusion Subject to Mechanical Stimulus
821	LI Hui, YU Qian-qian, WANG Bo-zhou, LAI Wei-peng, GE Zhong-xue, LI Ya-nan, LIU Ning	Synthesis and Thermal Properties of 3,3'-Bis(tetrazol-5-yl)-4,4'-azofurazan and Its Energetic Salts
825	LU Chun-hua, WANG Juan, ZHOU Xin-li	Synthesis and Thermal Behavior of Tris(para-nitrophenyloxymethyl)nitromethane