Preparation and Performance of a New Powdery Ammonium Nitrate Fuel Oil Explosive

HUANG Wen-yao, YAN Shi-long, WANG Xiao-guang, YUAN Sheng-fang, WU Guo-qun, XU Peng

(*School of Chemical Engineering, Anhui University of Science and Technology, Huainan* 232001, *China*)

Abstract: A new powdery ammonium nitrate fuel oil explosive was produced to solve the problems of complicated production process and low explosion energy. The explosive was made of ozocerite, surfactant, gelatinizer and water, which were made into slurry mixed solution at 105 –110 ℃, and was dehydrated from –0.07 MPa to –0.09 MPa. The microstructure and sensitivity of the explosive were analyzed, and the effects of the charge density on detonation velocity and underwater explosion energy were also studied. Results show that the mixing uniformity of the components and safety are good. When the charge density is 0.91 –0.94 g·cm^{-3}, the detonation velocity is more than 4000 m·s^{-1}, and the underwater explosion energy is more than 3700 kJ·kg^{-1}, which is close to the theoretical calculation value.

Key words: applied chemistry; powdery ammonium nitrate fuel oil explosive; expansion; sensitivity; detonation velocity

CLC number: TJ55; O69 **Document code**: A **DOI**: 10.3969/j.issn.1006-9941.2010.02.022

读者·作者·编者

2004 –2006 年《含能材料》被引频次较高的论文

No.	题　　名	作　　者	年	期	被引频次
1	甲苯的氟两相硝化反应研究(Ⅰ)	易文斌,蔡春	2005	01	18
2	纳米铝粉微胶囊的制备及表征	张凯,傅强,范敬辉,周德惠	2005	01	16
3	钼磷酸催化下甲苯的选择性硝化	程广斌,侍春明,彭新华,吕春绪	2004	02	12
4	固体推进剂用非铅燃速催化剂研究最新进展	宋秀铎,赵凤起,陈沛	2004	03	11
5	TATB 基高聚物粘结炸药的蠕变特性研究	李明,温茂萍,何强,庞海燕,敬世明	2005	03	10
6	不同粒径 RDX 的燃烧特性研究	祝明水,龙新平,蒋小华	2004	01	9
7	以取代氧丁环为母体制备含能粘合剂	胡中波,甘孝贤	2004	01	9
8	纳米铝粉的活性分析及寿命预测	范敬辉,张凯,吴菊英,马艳	2004	04	9
9	发射药燃速压力指数变化规律的研究	黄振亚,王泽山,张远波	2006	02	9
10	3,3′-二氨基-4,4′-偶氮呋咱及其氧化偶氮呋咱的研究进展	李洪珍,黄明,黄奕刚,董海山,李金山	2005	03	8
11	超临界 CO_2 抗溶剂法重结晶 AP 微细颗粒的研究	闻利群,张景林	2005	05	8
12	含黑索今的混合炸药废水可处理性研究	艾翠玲	2004	01	7
13	两种炸药的微波干燥	郁卫飞,曾贵玉,聂福德,秦德新	2004	02	7
14	三维空间中的膨胀石墨对毫米波衰减性能实验研究	关华,潘功配,王广,周遵宁	2004	05	7
15	铝粉对炸药性能的影响	殷海权,潘清,张建亮,王国柱,杨前生	2004	05	7
16	HC 基新型抗红外发烟剂研究	王玄玉,潘功配	2005	03	7
17	超细硼粉的 3,3-双(叠氮甲基)环氧丁烷-四氢呋喃共聚醚包覆研究	张琼方,张教强,国际英,庞维强,寇开昌	2005	03	7
18	纳米过渡金属粉对 AP 热分解的催化作用	杨毅,曹新富,刘磊力,刘宏英,李凤生	2005	05	7
19	高氮含能化合物的研究新进展	周阳,龙新平,王欣,舒远杰,田安民	2006	04	7

说明:被引频次根据《中国知识资源总库》中《中国学术期刊网络出版总库》《中国博士学位论文全文数据库》《中国优秀硕士学位论文全文数据库》和《中国重要会议论文全文数据库》的引文数据得出,统计日期截止 2008 年底。

(中国学术期刊(光盘版)电子杂志社　花平寰供稿)