Separation of TNT from Discarded or Obsolete TNT/RDX/Al Explosives by Melting Method

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Abstract: Separation and recovery is the previous process of reuse of discarded or obsolete explosives. According to the differences of the melting points of TNT, RDX and Al powder, TNT was separated by pressure differential filtration with water as the heating medium from the discarded or obsolete TNT/RDX/Al explosive. And the properties of explosive before and after separation were studied. Results show that the safety and efficiency of separation process are improved, and the recovery rate of TNT is 76.2%, and the purity of reclaimed TNT is 94.46%. The peak temperature on DSC curve for the melting process of reclaimed TNT is 81.0 ℃. The main impurities in reclaimed TNT are RDX in the eutectic system TNT-RDX.

Key words: analysis chemistry; discarded or obsolete TNT/RDX/Al explosive; melting separation; TNT; recovery rate; purity

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《炸药学》新书简介

现代兵器火力系统丛书——《炸药学》由北京理工大学欧育湘教授编著,于2014年2月由北京理工大学出版社出版。

该书共分12章,共512页。前四章介绍了炸药的基本理论,主要性能及合成单质炸药的重要有机反应,第五章至第第七章介绍了硝基化合物炸药、硝胺炸药、硝酸酯炸药,详细阐述了这三类最常用单质炸药的特征、制造原理、生产工艺及其最新进展,第八章至第九章对高能量密度化合物、含能黏结剂和含能增塑剂进行了较全面和系统的论述,第十章至第十二章重点介绍了军用混合炸药、民用混合炸药和起爆药。

与以往同类教材相比,该书对制式军用炸药的论述更为全面并补充了一些新的研究成果,特别是对一些近年研究得比较成熟已应用或者应用前景较好的新一代高能量密度炸药、耐热炸药、钝感炸药、多种含能粘结剂和增塑剂等进行了较系统阐述,在很大程度上反映了炸药领域当代先进科学技术水平

该书注重化学理论与工艺技术相结合,反映了含能材料领域内的新理论、新材料、新工艺,很多内容都是以往同类教材或专著中缺乏或者不够系统的,可作为高等学校含能材料专业的本科生及研究生教材,也可供相关院校及研究院所技术人员参考。