

[1]钱新明,魏思凡,邓楠.CNTs/TMO复合催化剂对含高氯酸钾烟火药剂分解反应速率的影响[J].火炸药学报,2009,(3):87-90.

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## CNTs/TMO复合催化剂对含高氯酸钾烟火药剂分解



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《火炸药学报》 [ISSN:1007-7812/CN:61-1310/TJ] 卷: 期数: 2009年第3期 页码: 87-90 栏目: 出版日期: 2009-06-30

Title: Effect of Carbon Nanotubes Supporting Transition Metal Oxides on Reaction Rate of Firework of Potassium Perchlorate

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关键词: 物理化学; 碳纳米管; 过渡金属氧化物; 高氯酸钾; 烟火药剂; 催化作用

Keywords: physical chemistry; carbon nanotubes; transition metal oxides (TMO); potassium perchlorate; firework; catalytic action

分类号: TJ55; TQ562

DOI: -

文献标志码: A

摘要: 采用化学沉淀法制备沉积于碳纳米管(CNTs)表面上的CuO、Fe<sub>2</sub>O<sub>3</sub>复合催化剂。用光电子能谱(XPS)对复合催化剂进行表征,研究了CuO/CNTs和Fe<sub>2</sub>O<sub>3</sub>/CNTs复合催化剂对含高氯酸钾烟火药剂分解反应的影响。结果表明, CuO和Fe<sub>2</sub>O<sub>3</sub>颗粒均匀地附着在碳纳米管表面上, CuO/CNTs和Fe<sub>2</sub>O<sub>3</sub>/CNTs复合催化剂能够提高含高氯酸钾烟火药剂的反应速率,复合催化剂对高氯酸钾烟火药剂的催化性能明显优于Fe<sub>2</sub>O<sub>3</sub>和CuO混合物的催化性能。

Abstract: Carbon nanotubes (CNTs) supporting ferric oxide (Fe<sub>2</sub>O<sub>3</sub>) and copper oxide(CuO) as composite particles catalyst was prepared by the chemical precipitation method, and characterized by XPS. The effect of Fe<sub>2</sub>O<sub>3</sub>/CNTs and CuO/CNTs composite particles catalyst on the decomposition reaction of fireworks containing potassium perchlorate (KP) was studied. The results show that Fe<sub>2</sub>O<sub>3</sub> and CuO were coated uniformly on the surface of carbon nanotubes. The reaction rate of KP adding Fe<sub>2</sub>O<sub>3</sub>/CNTs and CuO/CNTs composite particles

catalyst was enhanced. Catalytic properties of Fe<sub>2</sub>O<sub>3</sub>/CNTs and CuO/CNTs composite particles were superior to that of Fe<sub>2</sub>O<sub>3</sub> and CuO.

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