

Principle and Optimized Parameters for Destroying CS by an Incinerator

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Abstract: According to combustion theory and chemical structure of *o*-chlorobenzylidene malonitrile (CS), the principle for destroying CS by Incineration was analyzed, and the reaction products and equation of the incineration were determined. By incineration experiments, the major influencing factors on the incineration effect, such as single feed-in waste quantity, feed-in time interval, temperatures of the first and second firebox were discussed. Moreover, the optimized parameters for destroying CS by incineration equipment were determined. As a result, CS can be thoroughly destroyed by the special incineration equipment under the optimized parameters that the excess air coefficient is 2.0, the feed-in waste quantity is 400 g each time, the feed-in time interval is 3 min, the temperature of the first firebox is 750 °C and the second firebox is 1100 °C.

Key words: applied chemistry; dangerous chemical; lacrimatory agent; *o*-chlorobenzylidene malonitrile (CS); incineration; destroying

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由劳允亮和盛涤伦两位教授编著的面向“十二五”高等学校精品规划教材《火工药剂学》2011年8月由北京理工大学出版社出版。

火工药剂作为一种特殊的化学能源,具有许多独特的性能和功能。该书全面论述了这种特种能源材料的基本原理、性能和制备技术。全书共分13章,前3章论述火工药剂的基本原理和性能基础,第4~第8章论述各类起爆药的结构特征、热力学、动力学、爆炸性能和制备工艺等,第9~第12章分别论述点火药、延期药、击发药和共沉淀等混合火工药剂的基本原理与设计技术,第13章介绍了火工药剂的新技术和新药剂以及环保型火工药剂等。

因此,《火工药剂学》具有基础理论与工艺技术相结合特点,涵盖全部火工药剂学的全部内容,可作为高等院校特种能源工程与烟火技术、含能材料、爆破器材、安全工程、武器系统设计和航天工程等相关专业的教材和研究生参考书,同时也可作为从事火工品、烟火技术、特种弹药、爆破器材等工程技术人员的参考书。