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## Influence of Lead and Copper Salt Catalysts on the Thermal Decomposition and Cook-off Responses of DNTF

JIANG Qiu-li, LUO Yi-ming, YANG Fei, JU Rong-hui, ZHANG Meng-meng, WANG Wei, LI Bing-bo

(Xi'an Modern Chemistry Research Institute, Xi'an 710065, China)

**Abstract:** To improve its thermal safety, the effects of lead and copper salt catalysts, including CuSa, PbSa,  $\beta$ -Cu, Cu(PA)<sub>2</sub>, and CuO, on thermal decomposition and cook-off responses of DNTF were studied through PDSC and small scale cook-off experiments. Experiment results show that the thermal decomposition and cook-off reaction level can be adjusted by different analysts. To be specific, the organic copper salts, i.e., CuSa,  $\beta$ -Cu and Cu(PA)<sub>2</sub>, increase the rate of thermal decomposition of DNTF while reduce the decomposition temperature of DNTF. PbSa increases the decomposition temperature of DNTF by 3.1 °C and promotes its second decomposition; CuO has no effect on the thermal decomposition of DNTF. CuSa decreases the response temperature of cook-off test at heating rate of 1 °C·min<sup>-1</sup> for unrestrained DNTF from 236.6 °C to 182.3 °C while for high constraint by 2.4 °C, and changes the reaction levels of both unrestrained and high constrained from explosion to burning. This implies that the cook-off responses of DNTF-based explosive could be decreased by organic copper salts, such as CuSa.

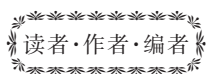
**Key words:** DNTF; catalyst; thermal decomposition; cook-off experiment

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## 更正

本刊2020年第4期《基于SPH-FEM耦合法切缝药包爆破机理数值模拟》一文的修回日期为2019-02-15。特此更正。

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