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## Numerical Simulation of Cook-off for Explosive at Different Heat Fluxes

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**Abstract:** A thermal reaction model of explosive was established for the cook-off test under the thermal condition of fire and thermal stability consideration of the explosive with the unexpected thermal radiation. The RDX-based cast cured alumnized (GHL) explosive was selected to investigate the characteristics of thermal ignition of the explosive at heat flux of  $10^4, 10^5, 10^6 \text{ W} \cdot \text{m}^{-2}$ , respectively. The calculation is conducted by means of the CFD software (ANSYS FLUENT) and the time to ignition, the ignition temperature and the ignition location were obtained. Results show that the ignition time of explosive decreases and the shell temperature increases with increasing of heat flux. The ignition temperature is slightly affected by heat flux. The ignition location is center of the upper center of the explosive.

**Key words:** physical chemistry; RDX-based cast cured alumnized explosive; cook-off; heat flux; ignition; numerical simulation

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## 42 届 ICT 国际年会会讯

第 42 届 ICT 国际年会于 2011 年 6 月 29 日到 7 月 1 日在德国卡尔斯鲁厄举行。今年年会的主题是“烟火剂、推进剂、炸药的模拟与表征”。大会正式开幕前,全体成员集体对今年年初病故的著名爆轰学专家 M. Held 博士表示了哀悼。来自近 30 个国家的二百多名含能材料领域的专家分别就“反应行为的试验表征、燃烧与爆轰的先进诊断、反应行为的数值模拟”等专题进行了为期三天的热烈交流与讨论。国内的中物院化工材料研究所,航天 42 所等单位派代表参加了年会。来自中物院化工材料研究所的李明博士以“化工材料研究所的降感含能晶体研究进展”为题做了大会报告,赢得了与会各国专家的高度兴趣与关注。据悉,第 43 届 ICT 国际年会将于 2012 年 6 月 26 日至 29 日在卡尔斯鲁厄举行。

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