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Performance of Carbon Black/Potassium Nitrate Propellant for Blasting Valve

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Abstract: To satisfy the requirements of passive pressurized water reactor nuclear power station explosion valve for high-temperature-resistant gas-producing powder, the carbon black/potassium nitrate (CPN) propellant was developed, and its performances were tested and evaluated by DSC, TGA, closed bomb test, linear burning rate test, friction sensitivity and electrostatic sensitivity tests. The comparison of performances of CPN and black powder (HY6) and sulfur-free black powder (WHY6) was carried out. Results show that the auto ignition temperature of the CPN propellant is over 321 ℃, revealing that the CPN propellant has good thermal stability and high temperature-resistance ability. The CPN propellant has the ability of producing gas to do work. The burning rates increases in the order; CPN<WHY6<HY6. The values of friction sensitivity and electrostatic sensitivity of the CPN propellant are 0. The safety of the CPN propellant is better than that of HY6 and WHY6.

Key words: analytical chemistry; nuclear power technology; pyrotechnics; blasting valve; propellant; black powder; gas generator: high temperature resistance

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更 正

因本人疏忽,发表在《含能材料》2014年第2期《新型乙炔氨推进剂热力性能计算分析》一文中,误将 后面的参考文献[4]与参考文献[5]顺序写反,文献[4]为:[4] Лихванцев А. А АЦЕТАМ : новое ракет ное горючее[Ж]. Труды НПОЭ нергомаш, 2012, T29, 132-134. 文献[5]应为: [5] Winternitz. P. F. Theoretical, laboratory and experimental investigations of high energy propellants, Summary Report No. RMI-293-51, Reaction Motors, Inc., Rocknway, N.J., Oct., 1950, VOL. 1, pp. 78-81. 特此更正, 对读者带来的不便深 www.energetic*

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