评价。测定的温度范围不同是等温与非等温的动力学数据存在差异的主要原因之一。

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Catalytic Effects of Nano Metal Oxides on the Decomposition of HMX

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Abstract：The effects of nine nano metal oxides，including Co_3O_4，Fe_2O_3，Bi_2O_3，CuO，PbO，Al_2O_3，TiO_2，NiO and PbO/CuO，on thermal decomposition of HMX were investigated by PDSC，TG-DTG and iso-TG. The results show that the decomposition of HMX in solid phase before melting is advanced by the metal oxides，especially PbO，Al_2O_3 and TiO_2，and the endothermic melting peak of HMX mixed with PbO and Al_2O_3 even disappear entirely，owing to the compensation of exothermic decomposition in solid phase at pressure. Thermal decomposition of HMX in liquid phase at high pressure of 3 MPa is catalyzed by PbO，but not affected by Al_2O_3 and TiO_2. The results of TG-DTG at lower heating rates and iso-TG under HMX melting temperature are in agreement with those of DSC in solid decomposition at ambient pressure. These results are advantageous to the identification of the different effects of nano and normal metal oxides. The catalytic decomposition of HMX by nano and normal metal oxides，including CuO，PbO，Al_2O_3 and TiO_2，were also characterized by the kinetic parameters obtained from isothermal and non-isothermal TG. The kinetic parameters obtained from isothermal TG are in agreement with those from non-isothermal. The catalytic effects characterized by means of kinetic parameters consist also with those by DSC and TG-DTG. The decrements of E_a values of the decomposition of HMX with three nano materials，except CuO，are more than that of those with normal materials.

Key words：physical chemistry；thermal decomposition；dynamic；nano metal oxide；HMX；thermal analysis

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第二届全国化学推进剂应用技术学术会议的召开

第二届全国化学推进剂应用技术学术会议于 2005 年 9 月 20 日～9 月 24 日在西安成功召开。会议由中国化学会主办，第二炮兵工程学院、第二炮兵推进剂分析中心承办，来自 22 个单位的 85 位代表出席了会议，洛阳黎明化工研究院高级工程师、中国工程院李俊贤院士，第二炮兵工程学院一级教授、中国工程院黄先祥院士，第二炮兵工程学院刘光生副院长莅临了会议。会议由中国化学会方智秘书长主持，李俊贤院士和中科院上海有机化学研究所的陈敏伯教授分别作了题为《化学推进剂原材料及助剂》、《高能量密度材料的分子设计》的学术报告，22 位专家代表进行了大会学术交流。会议紧紧围绕化学推进剂最新研究进展，化学推进剂质量分析方法，化学推进剂检测、监测，化学推进剂毒性、毒理研究，化学推进剂燃烧爆炸机理，化学推进剂安全防护，化学推进剂污染治理，化学推进剂生产、贮运、安全评价及管理等内容，从不同专业、不同角度进行了广泛深入地讨论，对于化学推进剂专家、学者和管理人员之间的学术交流与技术合作具有积极地推动作用。

第三届全国化学推进剂应用技术学术会议将于 2007 年举行。

（第二炮兵工程学院 张有智　供稿）