

## **Combustion of pyrotechnic composites for Micro Tube**

Shen Ruiqi, Wu Shuangzhang, Liu Jian, Ye Yinghua, Hu Yan, Zhu Peng, WU lizhi  
School of Chemical Engineering, Nanjing University of Science and Technology,  
Nanjing210094, China

**ABSTRACT:** Combustions and propulsions of micro flows are very useful in space application. Si/Pb<sub>3</sub>O<sub>4</sub> and B/KNO<sub>3</sub> are important composites in space pyrotechnic devices. When they are used in micro tube as energetic charges, the combustion will show special and different performances from that at large size scale. Boundary effects of micro tube and resistance effects of solid burned products induce burning oscillation, burning acceleration and shock jet. Studied combustion models of micro tube can analyze experiment results well.

**Keywords:** micro tube; burning rate; Si/Pb<sub>3</sub>O<sub>4</sub>; B/KNO<sub>3</sub>; size effect