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Experimental study on aerosol fire extinguishing agent with organic acid potassium as combustible material

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Abstract: An airtight box with 1 m³ was used to test fire extinguishing performance; two kinds of aerosol fire extinguishing agents with organic acid potassium as combustible material were got by split-half method, and the fire-extinguishing time was compared. Potassium carbonate was added into aerosol fire extinguishing agents as heat dissipative agents to slow down the reaction and reduce the flame. Langlie method was used in experiments, the 99% application density of these two extinguishing agents were got, between 70~75 g/m³. At last, the toxicity of combustion product of these two aerosol fire extinguishing agents was tested to be low. The application of probability theory in the study of fire extinguishing performance of aerosol fire extinguishing agent is necessary because of the uncertainty of putting out fire by aerosol fire extinguishing agents.

Key words: aerosol fire extinguishing agent; organic acid potassium; Langlie method; probability theory

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少, 管路减少, 施工安装简便、快速, 消防保护的成本也明显降低。相信随着大空间喷水灭火系统产品标准和设计规范的实施, 闭式旋转型雨淋喷头必将发挥其独特的优势, 为高大空间建筑消防保护发挥重要的作用。

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Experimental research on closed rotating sprinkler

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Abstract: The structure and working principle of closed rotating sprinkler were introduced. The dynamic thermal performance experiment was carried out to test the reacting sensitivity of closed rotating sprinkler glass ball. The water distribution performance was examined in two heights of sagged installation. The fire extinguishing performance was inspected by wood crib fire extinguish and rotating speed test under different working pressure. The continuous sprinkle performance was examined under the pressure of 0.2 MPa. Test results showed that, the structure design of closed rotating sprinkler benefits the thermal transportation; the sprinkler has well dynamic thermal and water distribution performance; the sprinkler density reaches the light hazard class requirement; the function is steady and reliable.

Key words: rotating sprinkler; dynamic thermal performance; water distribution performance; fire extinguish control; continuous sprinkler performance

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