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## Simulation of Non-lethal Efficiency of Tear Bomb Aerosol Smoke Based on Gaussian Diffusion Model

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**Abstract:** The tear bomb is a kind of non-lethal anti riot bomb. To study its non-lethal efficiency size, the armed police RS97-2 type tear bomb was used as the research object. The diffusion process of aerosol smoke for the tear bomb was studied by using Gaussian diffusion model. The change rule in the concentration and smoke radius of CS tear agent at the time of smoke diffusion was analyzed. The simulation and calculation were carried out by written software using Matlab. The effective area of the aerosol smoke diffusion of tear bomb obtained was used as a measurement index of its non lethal efficiency. Results show that when the wind speed is 2 $m \cdot s^{-1}$, the effective action area range of aerosol smoke for a tear bomb with tear agent charge of 20 g can reach 453.7 $m^2$.

**Key words:** Gaussian diffusion model;tear bomb aerosol smoke;non-lethal efficiency;simulation and calculation
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