



# Particle Infiltration Study

## Smoke Particle Infiltration into Firefighter Clothing

Exposure to cancer-causative agents in firefighting likely occurs on the fireground as well as in the aftermath of firefighting activity, particularly if clothing is not cleaned. Firefighters often complain that following a working structural fire, their work uniforms, underclothing, hair and even their skin can continue to smell like smoke, sometimes even after repeated showers.

The fact is that fire smoke, which consists of particles, easily penetrates into the clothing ensemble. The problem is the unburned carbon that makes up the bulk of those particles, since the irregularly shaped, highly porous carbon particles adsorb and can continue to carry toxic fire gases that evolve from the combustion process.

**Photo:** Testing process for florescent aerosol screening



**Photo:** Results after florescent aerosol screening test indicating particulate infiltration through firefighter PPE

