Aerosol Contamination at Fire Scenes

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High levels of several semivolatile contaminants, phthalates and polycyclic aromatic hydrocarbons (PAHs), have been measured on firefighter personal protective gear. Due to the high boiling points of the contaminants, it is anticipated that the contaminants originate from the fire scene as aerosols: in the form of fine droplets or adsorbed on fine ash particles. Contaminants may accumulate on firefighter gear during fire knockdown or during overhaul. If contaminants are in the air during overhaul, there is the potential for higher exposures, because firefighters rarely wear respiratory protection during the overhaul phase.

It is proposed to sample aerosols in firefighters' breathing zones at fire scenes during the overhaul phase and to characterize the chemistry of the particulate. These findings will be compared to the contamination found previously on personal protective gear. The hypothesis is that semivolatile chemical contamination measured on particulate in firefighters' breathing zones will be significantly higher than the limit of detection during overhaul, an operation during which water is not being sprayed and smoldering areas are being disturbed.

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