



Safety Bulletin

Structural Firefighting PPE

Date: February 6, 2018

Number: 18.001

Effective Date: February 6, 2018

Expiration Date: N/A

Approved By: Darren L. Stevens, Fire Rescue Chief

The importance of maintaining the cleanliness of ensembles and ensemble elements should not be underestimated. Soiled or contaminated ensembles and ensemble elements are a hazard to fire fighters. Oils and contaminants can be flammable, toxic, or carcinogenic. Additionally, soiled or contaminated ensembles and ensemble elements can have reduced protective performance.

Soiled or contaminated ensembles and ensemble elements can expose fire fighters to toxins and carcinogens that enter the body through ingestion, inhalation, or absorption. Repeated small exposures to some contaminants can add up over time and cause health problems.

Although great emphasis is placed on safety to avoid injury or inhalation hazards while working on the fire ground, many of the toxins which lead to health risks are being carried away from the fire scene on personal protective equipment used by the fire fighter.

Toxins that a fire fighter will come into contact with are found in soot, trapped within the fibers of soiled ensembles and ensemble elements or absorbed into the materials themselves. Contact with the soiled ensembles and ensemble elements increase the risk of the contaminants being introduced into the body.

Clothing contaminated with blood or other body fluids presents a potential risk of a communicable disease being transmitted to the person coming into contact with the contaminated clothing system.

Reduced performance hazards of contaminated ensembles and ensemble elements are apparent when clothing or equipment becomes laden with particles and chemicals.

Providing and maintaining safe and effective protective clothing and equipment is a high priority for our department(s). All personnel have a responsibility to ensure that the department issued protective clothing is maintained in a state of good repair.

Several department personnel have been trained to do in advance gear inspections can assistance with any questions regarding the protective clothing. Battalion Chief Lorenzen is the point of contact for PPE questions.

In general, PPE should be free of flaws or damage such as:

- cracks, holes, tears, fraying, or weakened materials
- heat/burn damage
- vapor barrier delamination/separation
- heat damage, crazing, cracks, and diminished visibility with facepieces

Thorough cleaning of PPE ensembles or elements by washing in gear extractors can be accomplished at the following approved facilities:

- Warrenton - Company 1
- Remington - Company 2
- Marshall - Company 3
- Catlett - Company 7
- New Baltimore – Company 10

PPE that has been contaminated by petroleum products or other hazardous chemicals will require specialized cleaning. In these instances, contact the on-duty battalion chief.

Current studies suggest that many contaminants on PPE ensemble post fire off gas rapidly (within an hour) due to their volatility. The significance of this is that that off gassing begins immediately after the exit from the contaminated environment. To limit the exposure to this off gassing, personnel should remove their PPE as soon as practical after leaving the IDLH and allow the off gassing to occur away from the wearer. PPE should not be worn in rehab. Information on a recent study can be found at:

- *Interim report: cardiovascular and chemical exposure risks in modern firefighting.* Retrieved from Illinois Fire Service Institute website:
https://www.fsi.illinois.edu/documents/research/cardiochemrisksmodernFF_interimreport2016.pdf
- Page 49 covers this topic

Additionally, studies have revealed a dermal contamination risk when doffing contaminated PPE with bare hands. The use of disposable gloves limits the dermal contamination of the hands and sequent touched body parts. Information on this study can be found at:

- Illinois Fire Service Institute. (2017, November 30). *Fireground exposure control - doffing gloves* [Video file]. Retrieved from
<https://www.youtube.com/watch?v=QyAt5WHf5uM&feature=youtu.be>

Additional safe practices include:

- PPE shall not be brought into the home or living quarters of any fire station
- PPE should not be cleaned in public laundromats
- Commercial dry cleaning should not be used as a means of cleaning or decontaminating PPE
- Chlorine bleach or chlorinated solvents should not be used to clean or decontaminate PPE
- Cleaning or decontamination solution shall not be greater than pH 10.5
- Heavy scrubbing or high velocity power washers shall not be used
- PPE shall be placed in an area with good ventilation, out of direct sunlight and allowed to air dry in the absence of an approved gear drying system.
- Under NO circumstances will any employee attempt to repair their own PPE.

Questions regarding this bulletin should be directed to Battalion Chief Lorenzen or Assistant Chief Ciarrocca.