



## **Cleaning of Personal Protective Equipment After Exposure to Flood Waters**

Flood waters can contain raw sewage, fecal matter, bacteria, hazardous chemicals, and other contaminants. As such, responders who have entered water to assist victims of area flooding will expose themselves and their Personal Protective Equipment (PPE) to contamination. Contaminated ensembles or ensemble elements increase the risk of responders contracting communicable diseases. Because of this, PPE needs to be cleaned to remove any contaminants.

NFPA 1851, *Standard on Selection, Care, and Maintenance for Structural Firefighting and Proximity Firefighting Ensembles* provides the guidance for the inspection, maintenance, and care of the personal protective ensembles (PPE) and elements that fire fighters use.

Members should follow universal precautions when handling cleaning and decontamination of any ensemble or ensemble element contaminated by flood waters. Universal precautions include member self-protection with the use of gloves, aprons, full torso covers, arm covers, and eye/face protection.

It is imperative to shower after handling contaminated gear that has been in flood waters to decontaminate yourself.

### **How should PPE be cleaned?**

The most appropriate method to decontaminate PPE is to use a washer extractor and following NFPA 1851 recommendations. Independent service providers are also available to provide cleaning.

If no washer/extractor is available, then the PPE should be cleaned with a soft brush and soapy solution to remove any dried debris and stains. Large plastic bins can be used to soak, rinse, sanitize, and then rinse the PPE again. After washing, place the PPE in another bin with clean water to rinse out any remaining soap and sanitizer. The temperature of water used for washing is generally limited to 105° F.

### **What can be used to clean and sanitize PPE?**

NFPA 1851 requires that cleaning solutions have a pH range of not less than 6.0 pH and not greater than 10.5 pH. Check the original product container or MSDS for the pH.

When washing PPE after exposed to flood waters, detergent will not likely do the job by itself. If this is all that is available, you should perform a double wash and add one extra rinse. The minimum is normally 1 wash and 2 rinses.

A fabric sanitizer will need to be used. A product such as Defensive Fabric Sanitizer™ or similar can be used to sanitize after washing. Make sure the product states "fabric sanitizer" and **DOES NOT** contain bleach.

Some manufacturers recommend decontamination procedures using a 0.5% to 1% concentration of Lysol, or a 3% to 6% concentration of stabilized hydrogen peroxide for sanitation. *However, check with the PPE manufacturer to determine if these products can be used on your particular set of gear.*

### **Can bleach be used to clean and disinfect PPE?**

One of the most frequently asked questions concerns the decontamination of PPE, concerns whether or not chlorine bleach can be used to decontaminate and disinfect PPE. Bleach should **NEVER** be used to clean PPE.

### **Can I wash my PPE in my home washer or have it dry cleaned?**

Per NFPA 1851, soiled or contaminated elements shall not be brought into the home, washed in home laundries, or washed in public laundries unless the public laundry has a dedicated business to handle protective ensembles and ensemble elements.

Commercial dry cleaning shall not be used as a means of cleaning or decontaminating ensembles and ensemble elements.

### **What if the waters contained industrial products or chemicals?**

PPE exposed to industrial products or chemicals released in the flood waters should be removed from service for proper cleaning by an outside independent service provider or replaced.