



9 Ways to Protect Yourself from Your PPE

A firefighter in full PPE looks, and sometimes feels, invincible. Yet, we know they are not invincible. A working structure fire is a highly dangerous and dynamic environment. There is a lot going on that can harm firefighters. Ironically, the very gear we wear to protect ourselves in that environment plays hosts to compounds that are killing more firefighters than are floor collapses and flashovers.

Researchers know the compounds in the smoke and gas byproducts of combustion stick to firefighter PPE and increase their chances of contracting cancer by being inhaled into the body or absorbed through the skin. Researchers also know that proper cleaning and isolation of PPE can dramatically reduce the cancer risks. Here are nine steps to protect yourself from your protective gear.

1

Accept Reality

The reality of firefighting is that dirty, stained, unwashed turnout gear is not a sign of experience, saltiness or coolness — it's a sign that you are heading for a date with cancer. Need proof? Here's a look at [a fact sheet](#) on firefighters and cancer, and here's [a study showing](#) how carcinogens cling to PPE. Some are calling for working structure fires to be treated as hazmat scenes. And the news gets worse; studies show that overhaul activities and nonstructural fires are just as risky as structure fires. Until these facts are fully believed, meaningful change cannot happen.

2

Gross Decon

[These researchers](#) found that a thorough, yet simple, on scene gross decontamination can remove about 90 percent of the harmful particles from PPE. And it is not that hard to do. Here's the short of it: two contaminated firefighters on air in full PPE set up in a

warm zone and take turns using soap, water and a brush to do a head-to-toe cleaning on one another. The steps are easy to do and demonstrated in several videos like [this one](#). It's also strongly advised to clean your face and neck with moist wipes after gross decon and to shower as soon as possible.

3

Bag it

Remember, gross decon is not full decon. Climbing in the rig with dirty PPE contaminates the cab and exposes yourself and other firefighters onboard to PPE off gassing. Bag your PPE and store it in a compartment away from the riding cab. If there's no space for that, use an air-tight bag to prevent off gassing where firefighters are riding. Used together, bags like the **AMABILIS DUFFEL AND DECON DRY BAG** provide a combination of air-tight security and washable reusability. This is also a great way to move gear from station to station or when going to off-site training without contaminating your personal vehicle.

4

Protect Yourself During Cleaning

If your PPE is too contaminated to ride in the rig's cabin, it's too contaminated to handle without protection. Experts agree that the best practice is to use barrier protections such as gloves, masks and positive-pressure rooms when preparing PPE for laundry. Also, set up the cleaning room so dirty and clean PPE are handled in different areas so as not to contaminate newly cleaned gear.

5

Clean Your PPE — the Right Way

It is important to follow PPE manufacturers' cleaning instructions and [NFPA 1851](#), the standard for PPE care and maintenance. Completely disassemble jacket and pant liners and shells. Wash the shells with shells and liners with liners, turning the liners inside out. Use the proper water temperature (105 degrees F), the proper soap (6.0 to 10.5 pH range) and the proper laundry equipment (front-loading washer/extractor). Here's a look at Globe's PPE expert Patricia Freeman's [cleaning recommendations](#).

6

Remember the Accessories

Did you know helmets, gloves, boots and hoods — especially hoods — need the same level of gross decon and careful laundering as do pants and coats? These surface areas

also harbor carcinogens but often get the short-shift when it comes to cleaning. In fact, researchers know the [hood is especially troublesome](#) as it's been shown to allow chemicals to the neck and throat area, which are highly absorbent areas of the skin. The same cleaning requirements hold true for the SCBA; clean the harness, cylinder and mask after each event. Here's a look at how the [Swedes recommend](#) cleaning SCBA, helmets, boots and gloves.

7

Your Nose Doesn't Know

Researchers are struggling to determine how clean PPE actually is once it has been laundered. It's a difficult task because the best way to measure cleanliness involves destroying the PPE — which is not something many fire departments can do. PPE expert Jeffrey Stull says not to trust your nose. Because something smells clean doesn't mean it's free of contaminants; it may only mean it's off gassing the soap's fragrance. While researchers try to build a cleaner PPE mousetrap, carefully inspect your PPE for stains (and rips or holes) and discoloration. You may need to do a more thorough laundering for stubborn stains.

8

Air it Out

Improper drying methods, such as a hot tumble dryer or leaving gear in the sunlight, will diminish PPE fabrics' ability to provide protection. Use a drying cabinet or tubed rack that pumps air into the turnout gear. Air drying in a well-ventilated area out of sunlight takes longer, but is safe. And if you have to use a clothes dryer, [Freeman says](#) to not let the drum temperature exceed 105 degrees F.

9

Accept Reality Revisited

Once your turnout gear is clean, you are back to square one. It's here, before the tone drops, where the real hard work takes place. From the fire chief to the first-year firefighter, [everyone has a role](#) in keeping cancer-causing agents off and out of firefighters. Chiefs must provide firefighters with policies and equipment that allows them to carryout steps 2 through 8. Company officers need to enforce those policies so they become part of normal fire ground operations and departmental culture. And the individual firefighter, regardless of rank, needs to own his or her own health. That

means going into each working fire with the attitude that this is a hazmat call and having the discipline to follow through on steps 2 through 8. Not every small fire department can afford all the equipment necessary for best-case-scenario PPE care. Yet with modifications, every department can isolate and clean dirty gear. And no department can afford to replace firefighters lost to cancer because of ignorance or apathy about dirty PPE.



Need more information on keeping firefighters safe from contaminated PPE, read our white paper, "Cancer: How Firefighter PPE Increases the Risk and Preventative Actions you can Take."