

Clean equipment will help save lives in the long run

To minimize the risk of being diagnosed with cancer it is important that you minimize your everyday exposure to carcinogens such as PAH compounds in soot particles. Thorough cleaning and decontamination of your PPE is of course important, but it is more to it than that. Here is how to decontaminate, handle and store your PPE, including SCBA, to help minimize this exposure.

A full-page photograph of a firefighter in profile, facing left. The firefighter is wearing a white helmet with a headlamp, a full protective suit, and a large SCBA tank on their back. They are holding a flashlight in their right hand. The background is dark and filled with debris, suggesting a fire scene or a hazardous environment. The entire image has a blueish-green tint.

#DirtyInCleanOut

Contents

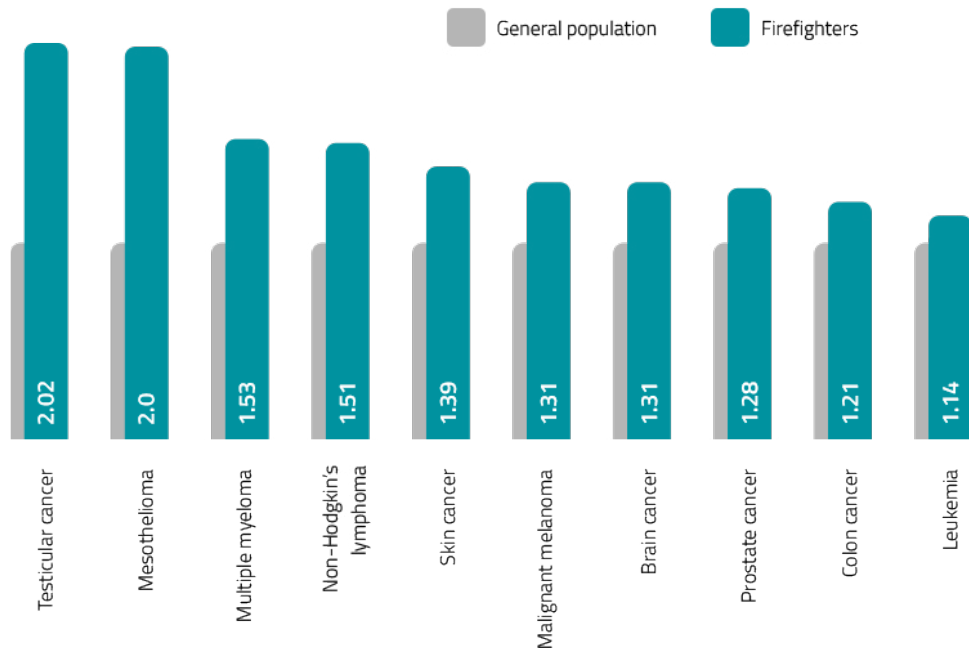
1. Cancer – the Number One Cause of Death Among Firefighters	3
2. Contaminated In, Clean Out	4
3. Contaminated Zone & Clean Zone	5
3.1. Collecting Contaminated Equipment (contaminated zone)	7
3.2. Cleaning Process (contaminated & clean space)	8
3.2.1. Turnout Gear	8
3.2.2. SCBA's, Facepieces, Helmets, Boots & Gloves	8
3.3. Drying (Clean Zone)	9
3.4. Storage (Clean Zone)	9
4. Tips On How To Minimize Your Exposure To Carcinogens	10
4.1. At the scene	10
4.2. At the fire station	10



1. Cancer – the Number One Cause of Death Among Firefighters

According to numerous studies, cancer is the number one cause of death among firefighters. In North America **cancer caused 66% of the career firefighter line-of-duty deaths** between 2002 and 2019. Firefighters also run a **9% higher risk of being diagnosed with cancer and a 14% higher risk of dying from cancer** than the general population¹.

The main reason for this is the number of toxic chemicals and carcinogens, such as PAH particles, they are exposure to in their every day line of work.



Additional risk of cancer among firefighters. Source: Firefighter Cancer Support Network ¹

In order to reduce the risk for firefighters of being diagnosed with cancer we need to minimize their exposure to these hazardous chemicals. The basic principle is that the less carcinogens you are exposed to the better your chances are not being diagnosed

1. Firefighter Cancer Support Network. <https://firefightercancersupport.org/resources/faq/>

with cancer. In other words, by minimizing the time and amount of exposure, both respiratory and dermal, the better.

At RESCUE Intellitech we have made it our number one priority to do what we can to help firefighters reduce the exposure and in the long run help them reduce the risk of being diagnosed with cancer. However, our product, the Solo Rescue® Decon Washer, is only one piece of the puzzle and does not offer a complete solution.



Studies show that carcinogenic particles can be found in most areas within a fire station.

Studies show that carcinogenic particles can be found in most areas within a fire station². To avoid this, it is important to handle contaminated gear in a safe and regulated manner to minimize the spreading of these particles. Thorough cleaning and decontamination of your PPE equipment is of course important, but it is more to it than that. Always follow these three basic rules.

- Always wash and decontaminate your PPE equipment after every occasion it has been used during a fire.
- Always make sure to use appropriate protective gear to minimize dermal and respiratory exposure while handling contaminated gear.
- Always make sure NOT to handle and store clean and contaminated gear in the same space within the station. This is to avoid re-contamination hence putting yourself and/or fellow firefighters at risk.

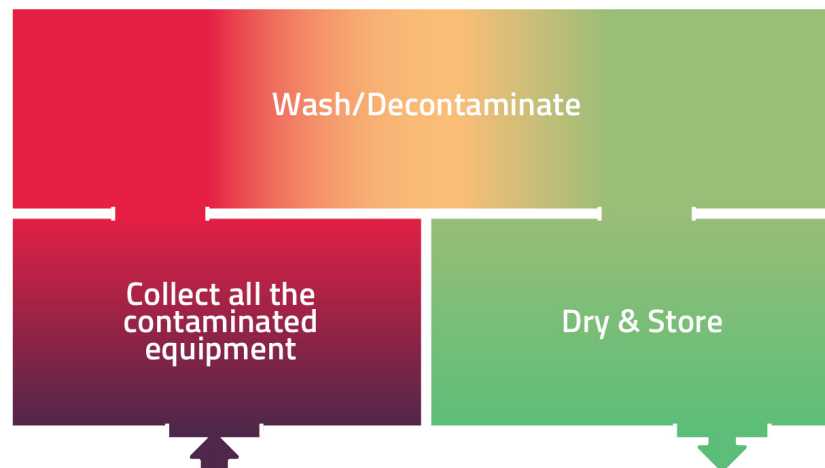
2. Contaminated In, Clean Out

One crucial part in minimizing your exposure is to understand **the concept of contaminated in, clean out**. This means that you should always collect contaminated gear in a dedicated contaminated/dirty zone, clean/wash/decontaminate it, and move it to a clean zone. By keeping them separate you will minimize the toxins and cancer-

2. <https://www.nature.com/articles/s41598-018-20616-6>

causing particles from spreading throughout the premises and reduce exposure. This is sometimes easier said than done in an existing fire station where the floorplan might not offer the best opportunities to do so **but it is important to remember that it is always better to do something than nothing**. You will just have to work with what you got. Your aim should be to plan the process of decontamination so that you can do the following:

1. Collect contaminated gear in a way that prevents contaminants to spread into other areas of the station.
2. Wash and decontaminate your PPE equipment after every occasion it has been used during a fire.
3. Handle and store clean and contaminated gear in separate spaces within the station to avoid re-contamination.
4. Move safely throughout the station without having to move through contaminated areas.



Divide the space you have into contaminated zones and clean zones

3. Contaminated Zone & Clean Zone

By divide the station into contaminated zones and clean zones you minimize the risk of moving through contaminated areas. This helps reduce exposure to toxic chemicals and the risk of spreading them throughout the station.

The contaminated zones are where you collect and wash contaminated gear after a fire call or training exercise. The clean zones are where you dry, handle and store the decontaminated equipment. **The zones should be separated with doors and if possible, use separate ventilation systems to prevent airborne particles from traveling to clean zones.**

Try to minimize areas and surfaces within the station where contaminated gear is being handled to minimize the spreading of toxic chemicals throughout the premises.

The area where you perform the cleaning process is in a way a grey area in between the two. In this area we recommend you divided it into contaminated and clean spaces. In these zones you will have decon washers, such as the Solo Rescue Decon Washer, extractors, sinks etc. Allow for some space to be able to handle contaminated gear in a safe way.

Avoid placing contaminated and clean zones in a way that forces you to carry contaminated equipment through clean zones, or the other way around. To do that,

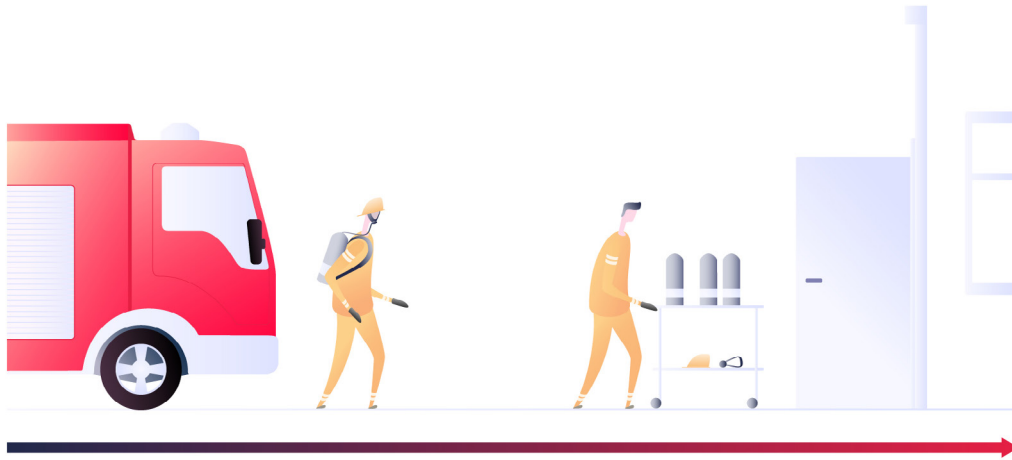


Cleaning and decontaminating SCBA's is a messy and time consuming process when done by hand, but with the Solo Rescue it is much easier. It allows us to minimize exposure to carcinogens such as PAH and speed up the decon process at the same time.

Dave Haynes, Fire Chief at Chillhowie Fire Department, Virginia

always **try to place the contaminated zone along an outside wall of the station with a separate entrance from the outside.**

After the contaminated gear has been dealt with the fire fighters needs to be able to wash of in a safe way which should apply the same basic principle about contaminated in, clean out.

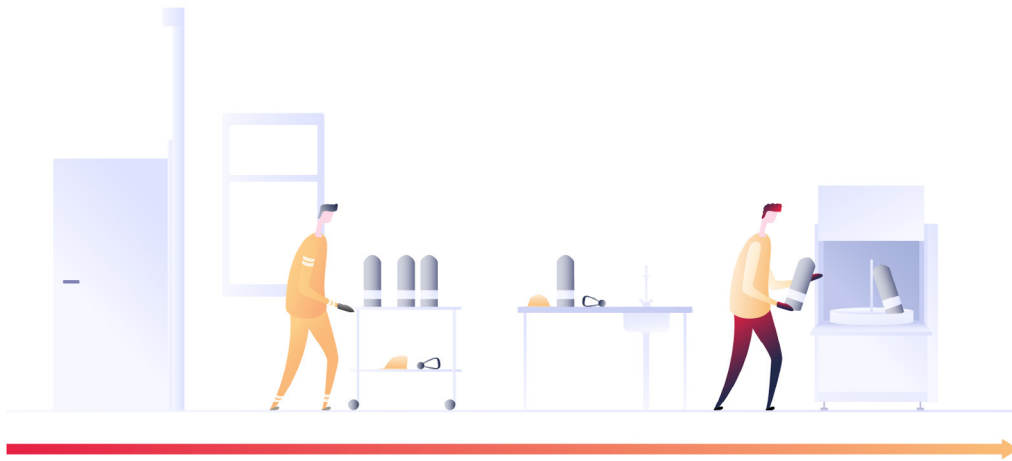


Always collect all the contaminated equipment at the same given place.

3.1. Collecting Contaminated Equipment (contaminated zone)

After a fire rescue operation or exercise is done you need to take care of your equipment in a safe manner. The first thing you need to do is to take it all off in a way that minimizes exposure to toxins. Have a colleague hose you down with water before taking of your protective gear. Have a colleague help you take your gloves of. If possible, use disposable gloves before handling any of you other PPE equipment in order to prevent dermal exposure on your hands. Put all fabrics in a plastic or encapsulation bag to help minimize contamination of the fire engine and the station upon arrival.

Upon arrival to the station, collect all the contaminated gear at a certain given place, contaminated zone, and make sure not to mix it with clean gear to avoid recontamination.



Remember to divide the cleaning/washing area into contaminated and clean spaces.

3.2. Cleaning Process (contaminated & clean space)

3.2.1. Turnout Gear

Turnout gear should be washed in a washing machine or extractor made for that sole purpose. It is important that the extractor is placed in a separate cleaning area outside of the contaminated zone. Remove all the fabrics and put them inside the extractor. Make sure you use appropriate protective equipment to minimize dermal and respiratory exposure. Once the cleaning cycle is finished the fabrics should be moved to a clean zone for drying.

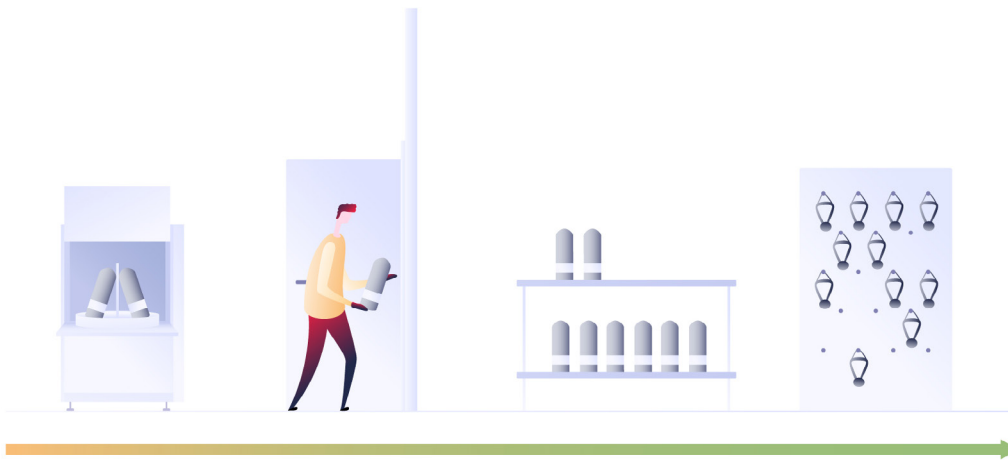
3.2.2. SCBA's, Facepieces, Helmets, Boots & Gloves

The best and safest way of cleaning contaminated SCBA, Facepieces, helmets, boots and gloves is to use a method that minimizes respiratory and dermal exposure to the hazardous chemicals and carcinogens stuck on the contaminated PPE equipment. An easy, safe and quick way of doing that is to use a decon washer like the Solo Rescue Decon Washer. With the Solo Rescue the entire cleaning process is carried out inside the machine, ensuring minimal exposure. The unique Solo Rescue solution also features a rotating basket that enables the water jets to reach even the most inaccessible parts of your equipment and gets the job done in less than 10 minutes.

If cleaning the equipment in a decon washer is not an option, cleaning by hand will have to do. However, cleaning the equipment by hand poses a health risk due to unprotected exposure to the carcinogens and is not something we recommend. It can also be both time consuming and hard work. If your station does not have a decon washer we strongly recommend you investigate investing in one.

Regardless of how the cleaning procedure is carried out it is important that it is done outside of the contaminated zone where you store or handle the contaminated gear.

Always make sure to follow your manufacturers washing instructions.



Place the clean gear and equipment in a separate space dedicated for drying.

3.3. Drying (Clean Zone)

Clean and decontaminated gear and equipment should be placed in a separate space dedicated for drying. If possible, use a dehumidifier to speed up the process. Make sure not to store or handle any contaminated equipment in this space.

3.4. Storage (Clean Zone)

Once the equipment is clean and dry it is ready to be used again. It is important to have dedicated areas to store clean gear in a clean zone, free from other contaminated equipment until it is time to use it again.

4. Tips On How To Minimize Your Exposure To Carcinogens

4.1. At the scene

- Always use personal protective equipment and a breathing apparatus when entering a fire or the aftermath of a fire.
- Always wear gloves during an operation or exercise.
- Never leave any skin exposed during an operation or exercise.
- Have a colleague hose you down with water before taking off your protective gear.
- Have a colleague help you take your gloves off.
- Put all fabrics in a plastic bag to prevent the fire engine from being contaminated.
- If possible, use disposable gloves before handling any of your other PPE equipment in order to prevent dermal exposure on your hands.
- Never bring contaminated gear inside the cab.

4.2. At the fire station

- Always wash and decontaminate your PPE equipment after every operation or exercise.
- Use a decon washer like the Solo Rescue Decon Washer to decontaminate SCBA's, facepieces, boots, gloves and helmets.

- Wash your turnout gear in a washing machine or extractor after each operation or exercise.
- Always make sure to use appropriate protective gear to minimize dermal and respiratory exposure while handling contaminated gear.
- Try to minimize areas and surfaces within the station where contaminated gear is being handled to minimize the spreading of the toxic chemicals throughout the premises.
- Divide the station into contaminated and clean zones
- Separate the zones with doors and if possible, use separate ventilation systems to prevent airborne particles from traveling to clean zones.
- Try to place the contaminated zone along an outside wall of the station with a separate entrance from the outside.
- To avoid re-contamination, make sure not to handle and store clean and contaminated gear in the same space within the station.
- Always shower after each operation or exercise. Use cold water in the beginning to make sure your skin pores are closed. This helps minimize dermal exposure.
- Make sure the fire engine is properly cleaned after each operation or exercise.

Want to learn more about the Solo Rescue Decon Washer?

If you want to find out more about the Solo Rescue Decon Washer, cancer among firefighters or just want to find a dealer near you, visit our website at www.myerssupply.com.



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We were thoroughly impressed by the machine's ease of operation, efficiency and performance. The number of contaminants that were removed from the SCBA's that had previously been cleaned by hand was astonishing.

Gary Robertson, Captain at Kananaskis Emergency Services,
Alberta, Canada.