



Backed By Science

LEJON KEMI

VIMPEX

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Firefighting PPE Specialist Decontamination Detergents

For efficient, safe and reliable removal of
carcinogens and other hazardous contaminants.

LEJON KEMI

VIMPEX

Lejon Kemi detergents can remove up to 95% of harmful substances from firefighting equipment and PPE using water-based cleaning methods*.

*with appropriate machinery and wash programmes

“No one should get ill from going to work, and firefighters deserve to go home at the end of their shift as safely and healthy as they began it.”

Fire Brigades Union

Fighting Carcinogens with a Science-Based Solution

Soot from fires is a health hazard.

Firefighters are up to **40% more likely** to be diagnosed with cancer than the general population due to exposure to harmful carcinogens in soot, gas and other fire-related substances.

The risk is so high that the International Agency for Research on Cancer, a World Health Organisation Body, declares firefighting a ‘cancer risk occupation’.

Fire brigades are working hard to improve health outcomes for their personnel by investing in efforts to reduce exposure to harmful substances. Remodelled fire stations, new routines and the decontamination of PPE, breathing apparatus and firefighting equipment all play an important part in keeping firefighters safe.

In 2011, Lejon Kemi initiated a research and product development project in order to create detergents, accessories and washing programmes developed explicitly to decontaminate firefighting clothing and equipment.

Today, more than 700 fire brigades and thousands of fire stations use Lejon Kemi’s science-backed solutions to safely remove up to 95% of all cancer-causing contaminants.

Science-Backed, Evidence-Based

We take the claims we make as seriously as the safety of the firefighters we protect. Every assertion about the efficacy of Lejon Kemi products at removing polycyclic aromatic hydrocarbons (PAHs) has been independently accredited by laboratories in Sweden and Germany.

The empirical evidence is clear: Lejon Kemi detergents consistently remove up to 95% of cancer-causing and other health hazardous contaminants from firefighting gear – outperforming competitors for decontamination of all firefighting clothing and equipment.



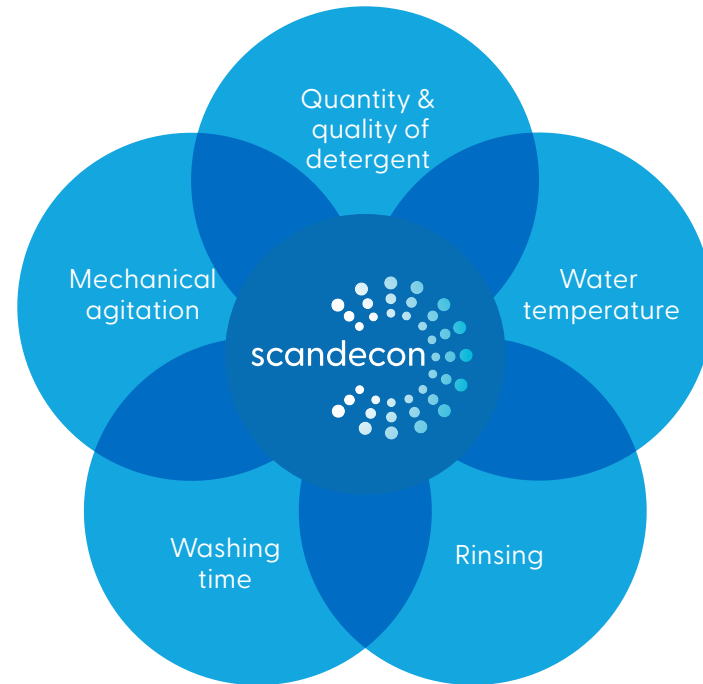
The only detergent specifically designed for washing firefighting gear

The Five Pillars of Decontamination

Five pillars influence how effectively you can clean and decontaminate firefighting equipment and PPE:

These factors can supplement each other to an extent. A strong, aggressive detergent might make it possible to reduce the washing temperature or shorten the washing time. But it could also increase clothing wear. Longer washing times allow for the use of milder detergents.

In the case of soot and smoke, however, it's necessary to optimise the five pillars to produce the best possible decontamination outcomes without damaging clothing and equipment.



Soot and Smoke: A Health Hazardous Cocktail

Soot and smoke contain countless hazardous substances, including known carcinogens that are small enough to be absorbed through the skin and inhaled deep into the lungs.

Removing these materials is incredibly difficult. Soot binds to certain types of plastics, rubbers and painted surfaces, making it all but impossible to remove without mechanical processing. Removing old or ingrained soot deposits is even harder.

Maximising the Pillars with Lejon Kemi Detergent

Lejon Kemi's range of detergents is optimised for use with warmer water, longer washing cycles and a range of cleaning methods that produce proven and consistent decontamination performances.

When combined with Lejon Kemi's cleaning accessories, including microfibre bags, defoamers, disinfectants, and dedicated machine programmes, our detergents have been proven to deliver far superior decontamination rates compared to 'conventional' detergents and washing programmes. We can remove up to 95% of contaminants.

Our Decontamination Detergents



FFE Cleaner

A water-based alkaline detergent developed and optimised to clean breathing apparatus both manually and in PPE spray washers.



LTW Wash

Concentrated liquid detergent for effective and safe decontamination of turnout kit, hoods and gloves.



FPG Wash

Used for cleaning face masks manually and in washing machines with special wash bags. Also for turnout kit.



SRP Defoamer

A defoaming agent and surface protector for use in PPE washers.



Fire Hose Cleaner

An alkaline water-based detergent optimised for soaking fire hoses prior to and during washing.



Cleanox

Effective, mild and biodegradable disinfectant that acts against a wide spectrum of bacteria, fungi and viruses.





Hoods, Gloves & Turnout Kit

The specialist textiles used in hoods, gloves and turnout kits protect firefighters in action, but they attract carcinogenic PAHs and other contaminants that stay long after fires have been extinguished.

Thorough cleaning of PPE is vital to prevent both immediate and ongoing exposure to harmful substances, which is why Lejon Kemi has developed the first washing detergents and wash programmes specifically designed for cleaning fire-protective clothing.

Independently verified research shows the combination of a washing detergent and programs designed for heavily soiled emergency turnout kit, gloves and hoods can reduce carcinogenic PAHs on fabric PPE by over 90%.



LTW Wash

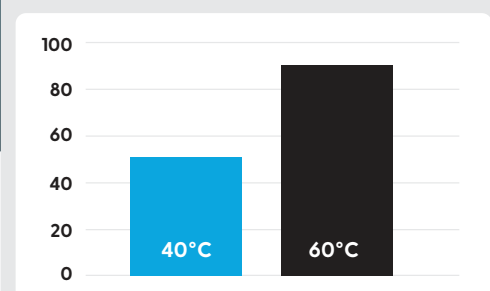
LTW detergent is a concentrated liquid detergent developed for effective and safe washing of turnout kit, hoods and gloves. The detergent loosens soot, oil, grease and other dirt, while remaining gentle on materials. For best possible and safe cleaning efficacy, LTW should be used together with Lejon Kemi's optimised wash programmes and appropriate machinery.

The 60° difference

Lejon Kemi's LTW and FPG washes will surpass conventional detergents at any water temperature. But increasing from 40°C to 60°C will significantly improve your results.

Because PAHs are oil and fat soluble, they become increasingly liquid with higher temperatures and thus easier to clean. Using our detergents at 40°C removes 45% of decontaminates. Washing at 60°C removes around 90%. That's a remarkable difference that can only be achieved with Lejon Kemi products and wash programmes.

Comparison between standard industrial wash at 40°C and optimized wash at 60°C

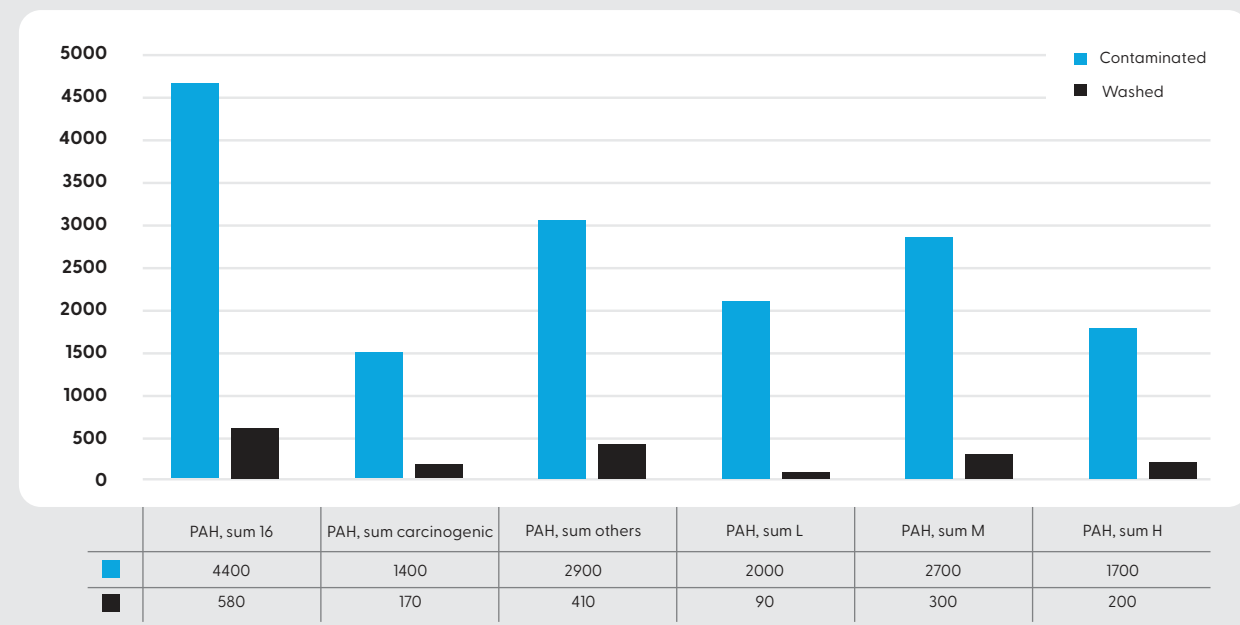


The Science

PAH Removal Rates of 16 PAHs from 85% to over 93%

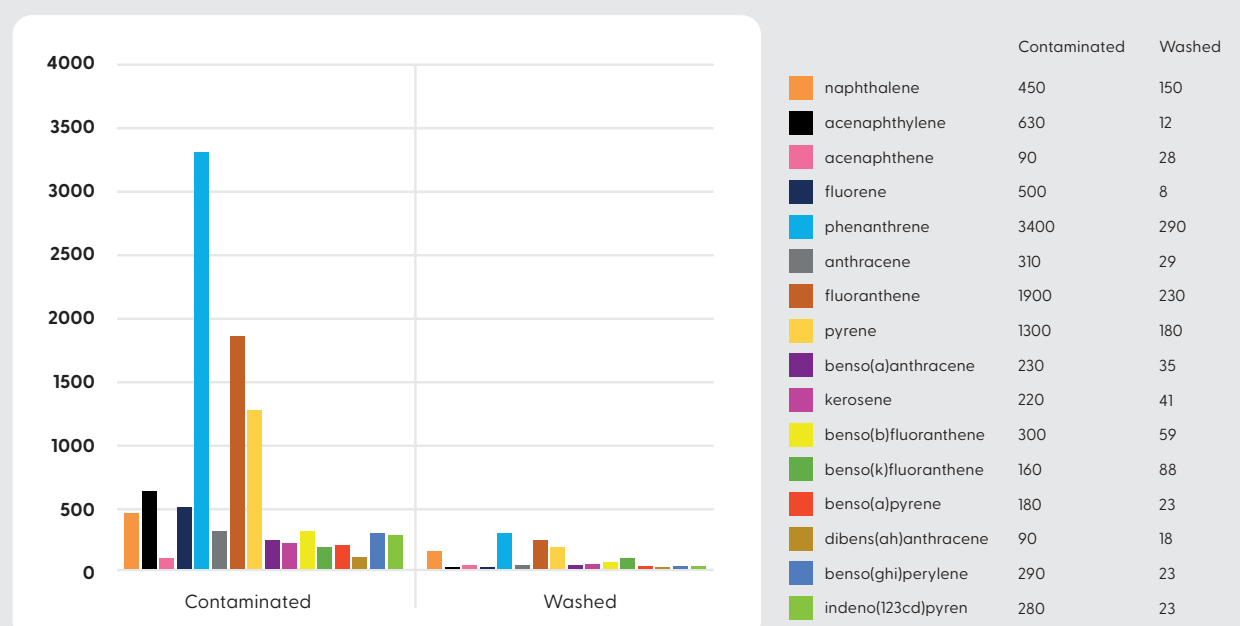
By washing heavily soiled turnout kit with Lejon Kemi FPG Wash for at least one hour at 60°C, you can reduce total PAH levels by at least 86.7% and carcinogenic PAH levels by at least 87.9%*.

PAHs mg/g of textile on heavily soiled turnout kit before and after washing at 60°C



By washing fire-protective gloves with Lejon Kemi FPG Wash for at least one hour at 60°C, you can reduce PAH levels by at least 88%*.

Levels of PAHs mg/g of textile on the outer side of contaminated washable fabric gloves before and after washing at 60°C



*All data according to laboratory and full-scale washing tests at fire departments and independent accredited laboratories. PAH levels before and after washing of contaminated turnout kit shows reductions of 16 different PAHs. Analysis method - Gas chromatography and mass-spectrometry.



Breathing Apparatus

Breathing apparatus can be made of over 30 different materials, such as plastic, rubber, composites and metals which bind dirt, attract carcinogenic PAHs and threaten the health of the firefighters they are meant to protect.

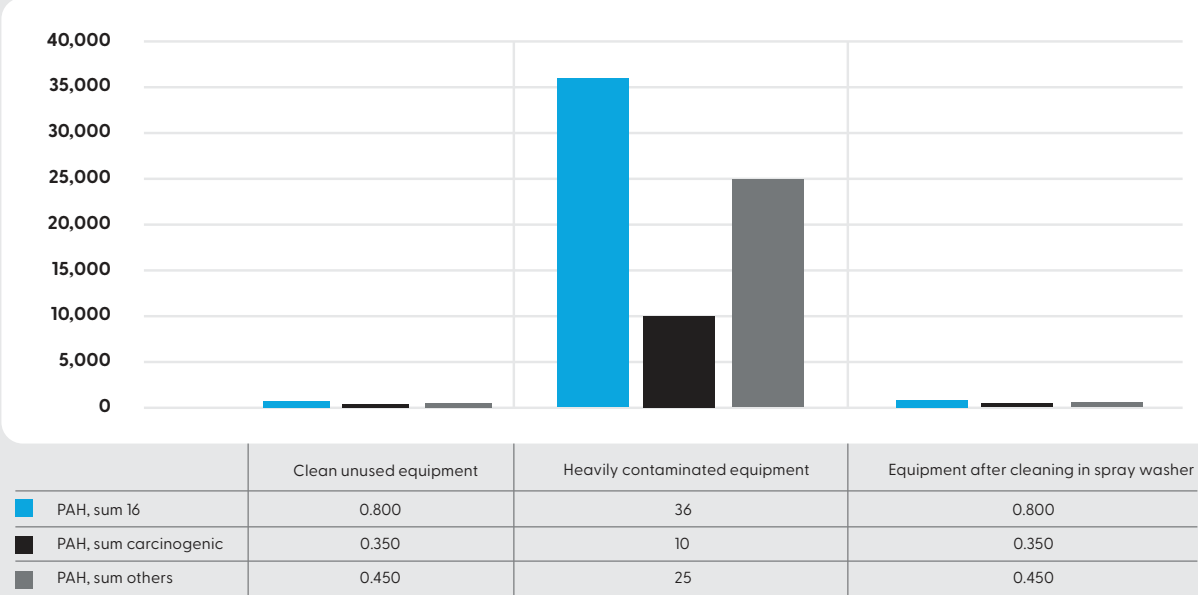
Although automated mechanical methods have been developed to clean breathing apparatus, short washing times and conventional detergents fail to produce satisfactory results.

Lejon Kemi's FFE cleaner and wash programmes are the solution. Independently verified research shows this detergent, alongside dedicated cleaning programs, can reduce PAH levels by 96.8%.

The Science PAH Removal Rates of up to 96.8%

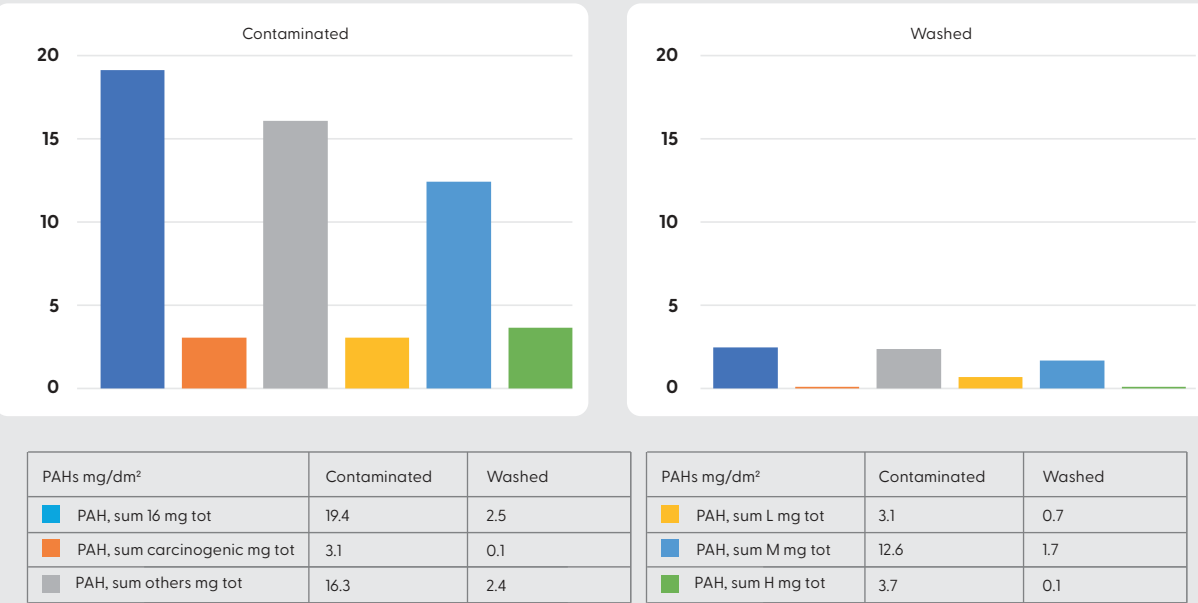
By pre-treating breathing apparatus with concentrated FFE Cleaner and washing in a PPE spray washer for 20 minutes at 60°C with 1% FFE Cleaner, you can decrease the total level of PAHs at least 97.8 % and decrease the level of carcinogenic PAHs by at least 96.5%*.

Comparison of PAH levels - brand new, used and cleaned BA Equipment



By pre-treating a harness with concentrated FFE Cleaner and washing in a PPE spray washer for 20 minutes at 60°C with 1% FFE Cleaner, you can decrease the total level of PAHs at least 87.1% and decrease the level of carcinogenic PAHs by at least 96.5%*.

PAHs on harness before and after pre-treatment and washing in a PPE spray washer



*All data according to laboratory and full-scale washing tests at fire departments and independent accredited laboratories. PAH levels before and after washing of contaminated turnout kit shows reductions of 16 different PAHs. Analysis method - Gas chromatography and mass-spectrometry.



FFE Cleaner

FFE Cleaner is a water-based alkaline detergent developed and optimised to clean breathing apparatus both manually and in PPE spray washers. it can also be used for cleaning tools, work benches and other fixed equipment.



SRP Defoamer

While Lejon Kemi detergents are developed to cause practically no foaming when washed at 50°C in a PPE spray washer, excessive foaming may occur if residues from previous detergents or wipes are still on straps and carrying harnesses.

Lejon Kemi's SRP Defoamer eliminates this problem while also acting as a surface-protecting agent.



Breathing Masks

Using conventional washing machines

Breathing masks are meant to prevent firefighters from inhaling harmful chemicals, yet conventional cleaning methods pose a serious health risk.

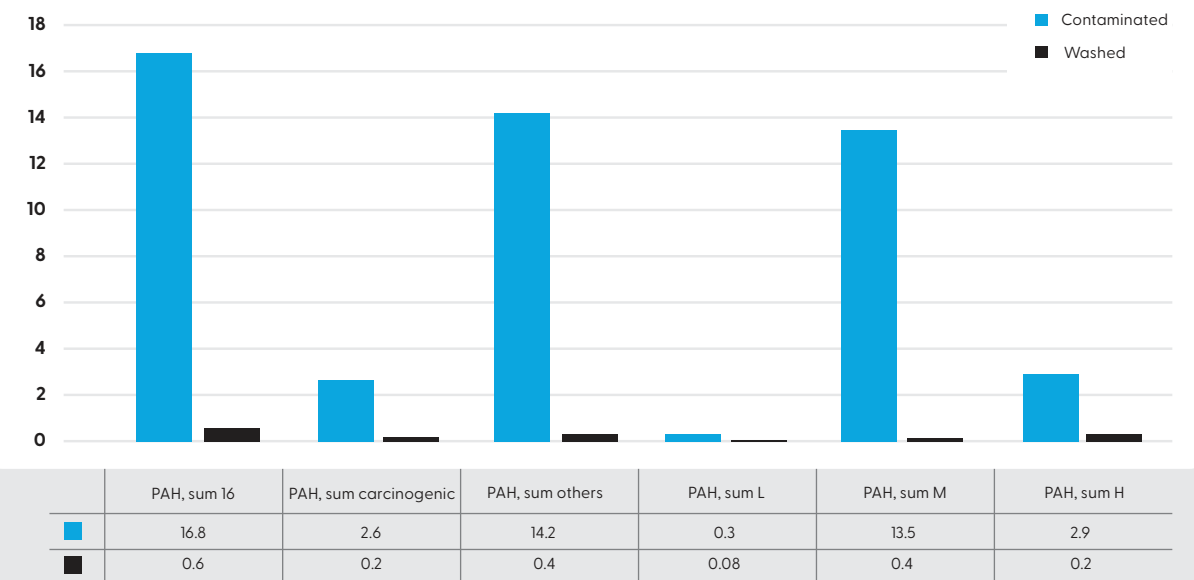
Contaminated water in PPE spray washers can create sooty residues that remain on the inside of masks after cleaning. This can happen despite departments taking precautions to clean masks separately from other breathing apparatus.

Lejon Kemi eliminates this danger by combining a detergent, disinfectant and wash bag that removes over 95% of hazardous substances from masks and ensures they are safe for reuse.

PAH Removal Rates of up to 96.8%

By washing breathing masks in protective microfibre washing bags with Lejon Kemi liquid detergent, FPG Wash at 50°C for 40 minutes with Lejon Kemi's washing programme, you can decrease the total amount of PAHs by at least 96.4% and the amount of carcinogenic PAH by at least 92.3%*.

PAHs on used, contaminated breathing masks before and after cleaning with wash bags in conventional washing machines



*All data according to laboratory and full-scale washing tests at fire departments and independent accredited laboratories. PAH levels before and after washing of contaminated turnout kit shows reductions of 16 different PAHs. Analysis method - Gas chromatography and mass-spectrometry.



FPG Wash

FPG Wash is an effective mild liquid detergent especially developed for efficient and safe cleaning of breathing masks manually and in washing machines by using Lejon Kemi's special washing bags and wash programmes.



Special Washing Bags

Our special Washing Bags are specifically designed to provide protection against mechanical damage during washing. The bags' microfibre material also ensures the effective and gentle removal of contaminants from the mask's surface by constantly washing and wiping during the rotating action of the washing machine.



40%

Firefighters are up to **40% more likely to contract cancers and lung, vascular and heart diseases** than their demographic. Scandecon is working to improve the health outcome for firefighters via verifiable and repeatable washing processes.

Fire Hoses

Fire hoses are exposed to the same hazardous substances as turnout kit and breathing apparatus, but they receive far less attention when it comes to decontamination.

To make matters worse, traditional hose decontamination methods – soaking in cold water before manual scrubbing – are insufficient at removing PAHs and carcinogens that threaten the life of firefighters who carry and care for them.

In light of this, Lejon Kemi has developed a hose-cleaning agent and washing programme that, when used with a mechanical hose cleaning machines, reduces total PAH levels by 88.5%. After all, why turnout in decontaminated fire kit and then grab a dirty, carcinogenic fire hose?

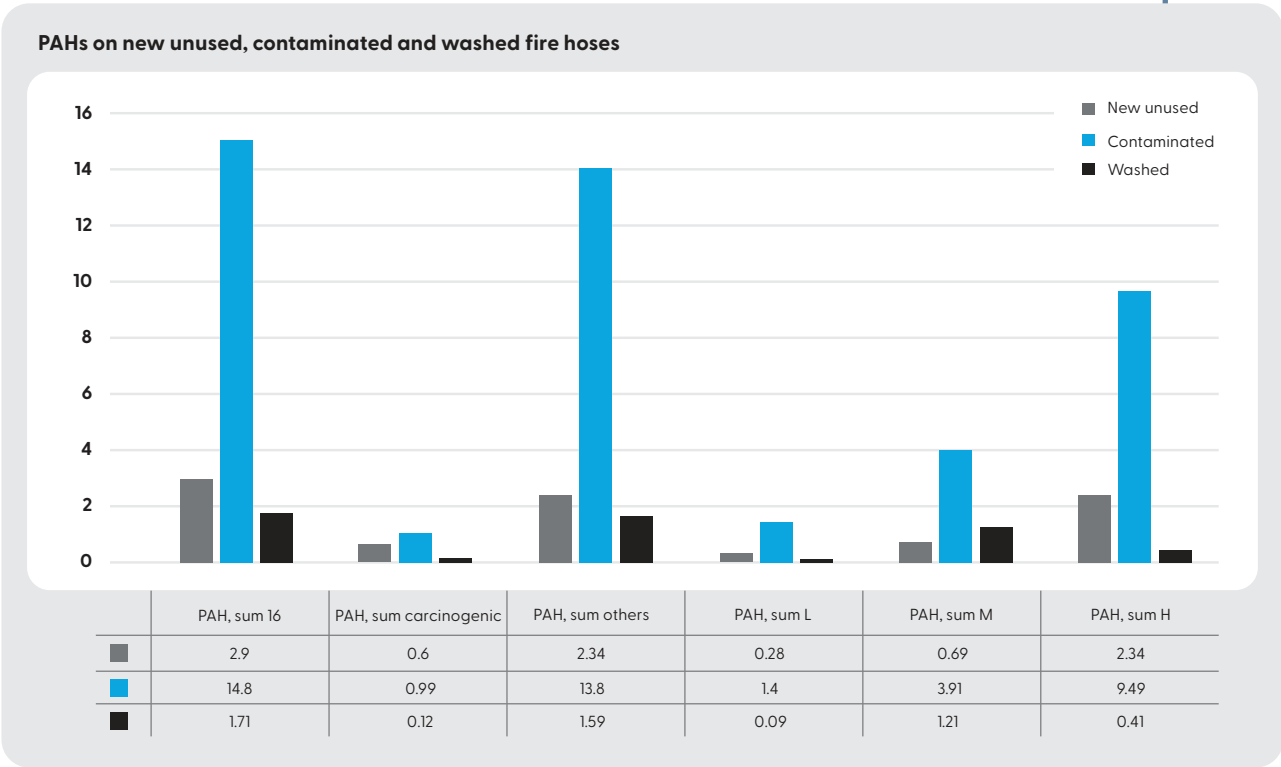


Hose Cleaning Agent

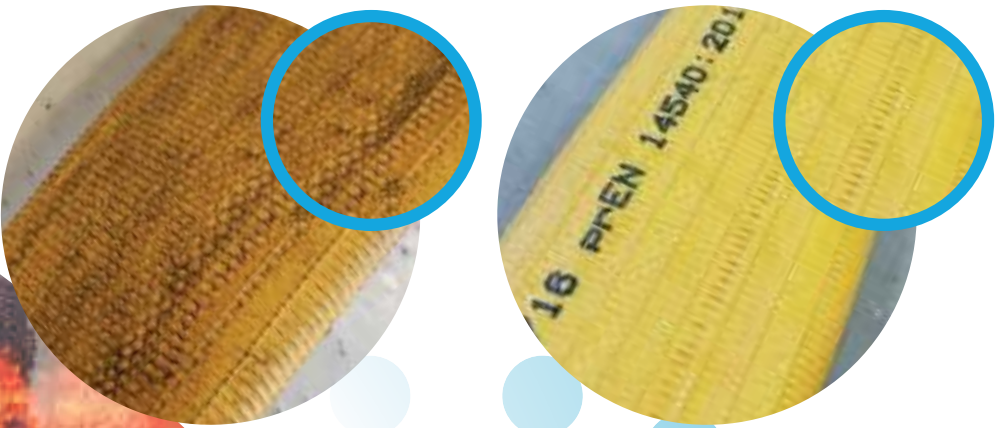
Lejon Kemi Hose Cleaning Agent is an alkaline water-based detergent optimised for soaking fire hoses prior to washing in a hose washing machine. The agent effectively loosens soot, oil, grease and other hard-to-remove contamination from plastic, rubber and lacquered surfaces.

PAH Removal Rates of up to 88.5%

By soaking soot-contaminated fire hoses for at least 60 minutes in a water bath at 60°C with 3% Lejon Kemi Hose Cleaner and then washing in a Werma Hose Washer at 160 bar pressure you can reduce total PAH levels by 88.5% and carcinogenic PAH levels by at least 87.9%*.



*All data according to laboratory and full-scale washing tests at fire departments and independent accredited laboratories. PAH levels before and after washing of contaminated turnout kit shows reductions of 16 different PAHs. Analysis method – Gas chromatography and mass-spectrometry.



Fire hose before and after washing at 60°C

Product Overview

Product	Description	Equipment	Recommended Temp (Always follow manufacturers' guidance)	Dosage	Packaging
FFE Cleaner	A water-based alkaline detergent developed and optimised to clean breathing apparatus.	Breathing Apparatus	55°C - Max 60°C	PPE washing machines: 1.0%. 2% – 3% for heavily soiled equipment or hard water. Manual cleaning: 0.5% – 3 % (For heavily soiled surfaces increase the dosage to up to 10% or use concentrate).	10 or 25 litre barrels
SRP Defoamer	A defoaming agent and surface protector for use in PPE washers.	Breathing Apparatus	55°C - Max 60°C	0.15% of agent dosed into the final rinsing water	10 litre barrels
LTW Wash	An effective and gentle liquid detergent developed specifically for turnout kit, hoods and washable gloves.	Hoods, Gloves (Fabric) and Turnout Kit	Fire-protective clothing: (40°C) – <u>60°C</u>	Soft water: 10ml / 1kg of dry clothing Medium-hard water: 12.5ml / 1kg Hard water: 15 ml / 1kg Manual cleaning: 0.5 – 3%	10 or 25 litre barrels
FPG Wash	Used for cleaning face masks in washing machines with special Lejon wash bags.	Breathing Masks	50°C - Max 55°C	Soft water: 0.4% Medium-hard water: 0.5% Hard water: 0.5% – 3% Manual cleaning: 0.5 % – 3%	10 or 25 litre barrels
Mask Washing Bags	Specially developed microfibre bags to clean breathing masks in a washing machine.	Breathing Masks	50°C - Max 60°C	N/A	6 washing bags/carton
Fire Hose Cleaner	An alkaline water-based detergent optimised for soaking fire hoses prior to washing.	Fire Hoses	Max 60°C	When soaking in 60°C water: 6 – 24 hours: 0.5% – 1% 2 – 6 hours: 1% – 3% 30 – 60 minutes: 3% – 5%	25 litres barrels
Cleanox Disinfectant	Effective disinfectant that acts against a wide spectrum of gram-negative and gram-positive bacteria, fungi and viruses.	Breathing Masks	35°C - 45°C	In 5 litres warm water (35 - 45°C) Soft water: 0.2% Medium-hard water: 0.5% Hard water: 0.5% Manual cleaning: 0.5%	10 litre barrels
SPC Impregnant	PFAS-free, long-acting impregnation and surface protection agent.	Hoods, Gloves (Fabric) and Turnout Kit	40°C - Max 50°C	25 ml/kg dry clothing/textiles	10 litre barrels

Decontamination Accessories, Installation and Turnkey Projects

Research shows that dose matters almost as much as the detergent.

While superior detergents and professional programmable washing machines will contribute to excellent results, automated dosing pumps maximise the efficacy of your cleaning process. After all, it's no use having market-leading detergents if you aren't applying them in the right concentration.

Whether you have a pre-existing pump that needs replacing or are yet to use a dosing pump with your washing machines, our team can supply, install and programme automated dosing pumps to ensure the five pillars of decontamination work in harmony.



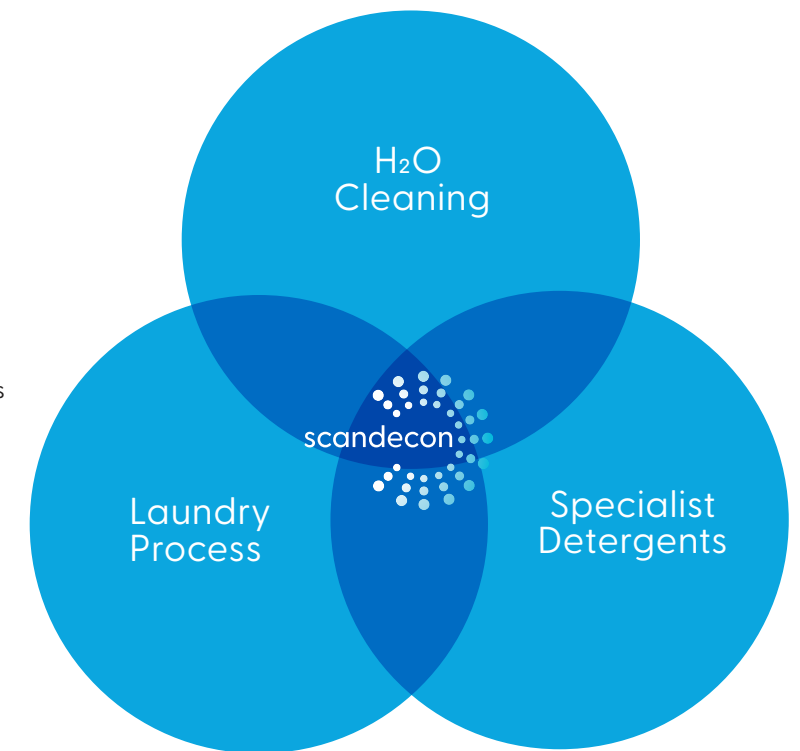
Our Partnerships with machinery manufacturers

In addition to dosing pumps, we can offer a range of H₂O washing machines to further enhance the decontamination process.

We are therefore able to supply a full range of machinery and handling equipment to create a full turn-key decontamination solution.

Our detergents are suitable for use with all brands of machines and we are able to provide specifically designed, optimised programmes for most machine manufacturers.

You can trust in our expertise to deliver the best possible protection for your firefighting team.



H₂O



Use our Knowledge and Resource

Customers of Vimpex Scandekon can benefit from the vast knowledge we have developed in the field of decontamination.

There is no 'silver bullet' for the complex challenge of improving cleanliness of firefighting clothing and PPE.

Great detergents will only perform with appropriate machinery, machine programming and correct dosing.

Our experienced team can assist with:

- Advice on progression from existing, embedded laundry processes.
- Input on optimisation within budgetary constraints.
- Provision of programmes specifically designed for professional washing machines.

See the process in action

Our network of European partners means we can provide your fire service with case studies and project experience from departments that have already implemented an optimal decontamination process.

Speak to a member of our team today if you'd like to arrange a site visit in the UK or Europe.



Discover more Decontamination Solutions with Scandekon by Vimpex

Lejon Kemi is part of the Vimpex Scandekon family – the leading supplier of science-backed fire service decontamination solutions in the UK.

Using H₂O cleaning methods with specialist detergents, we deliver unparalleled protection for firefighters. Our systems are built around a proven protocol for decontamination, ensuring the highest levels of safety and cleanliness.

Join the thousands of firefighters who use our products to stay safe and healthy.

Visit vimpex.com/scandekon for more information or speak to our sales team on +44 (0)1702 216 999

