

GUIDELINES FOR THE CARE OF FIREFIGHTER PROTECTIVE CLOTHING



 **S-GARD**

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FIRST

These guidelines are meant for all interested users of firefighter protective clothing, though particularly for equipment managers and/or persons responsible for the care, maintenance and repair of such clothing.

At fire brigades, the protective clothing used meets the EN 469 standard. To make sure these garments remain usable for as long as possible, they need special care. Proper care has an enormous influence on prolonging the life of protective clothing, so it can often be used for a much longer time. Though its protective performance can become reduced when soiled or contaminated.

In addition to the instructions provided by the manufacturer enclosed with the clothing as well as the attached identification label, these guidelines will help you to recondition your protective clothing effectively and properly.

► In order to achieve an optimal and hygienic cleaning effect whilst treating the laundry as gently as possible and maintaining the retroreflective effect of the reflective bands as well as the colour of the upper fabric constant, only those detergents should be used that are specially developed and tested for this purpose.

Furthermore, next to the chemical parameters, also the physical ones, i.e. the process parameters, must be taken into account. Only the correctly chosen combination of time, temperature, mechanics and chemistry will lead permanently to a good washing result and an optimal protective effect.

► However, the clothing must not just be properly cleaned but also reimpregnated depending on the intensity of use.

The dirt, water and chemical repellent properties of the protective clothing are diminished through use, but they can be renewed by providing a finish with special fluorocarbon resins.

That way, the outer shell becomes less saturated, thus reducing the absorption and retention of liquids, combustion residues and other contaminants in the clothing, the garments dry faster and insulation is much improved, especially in a damp condition.

This is particularly important when in contact with heat, but also in the winter, as wetness is a bad insulator.

Please read the following guidelines carefully, as they will help to keep up the performance and wear-life of your protective clothing for as long as possible.

The information contained in this leaflet is to provide you with advice. A liability claim cannot be inferred from these recommendations. Our responsible customer service representative is gladly at your disposal for any enquiries.

IMPORTANT BASIC INSTRUCTIONS

- ▶ Always keep your garments clean!

Only clothing that is free from oil, grease and sweat has the full protective effect, doesn't burn, is permanently waterproof and transports sweat reliably to the exterior.

- ▶ Protective clothing should be washed as soon as possible after an operation.

Clothing that is stored for a long time in a soiled condition leads to worse cleaning results.

- ▶ Always wash protective clothing separately so as not to adversely change the flame-retardant properties.

To prevent flammable fibres from clinging, do not wash together with flammable materials.

- ▶ Do not wash the garments in a private household; contamination can easily be spread!

Protective clothing should be reconditioned by a specialised service provider or professionally at the fire station.

- ▶ Damages are more easily recognised when the garments are washed. Protective clothing must be visually inspected for damages after every operation. If necessary, carry out repair work or discard the garment.

THE RIGHT MACHINE TECHNOLOGY

If possible, the protective clothing should be washed in freely programmable wet cleaning or washing machines with a load capacity of at least 15 kg of laundry. These machines can be set optimally to the washing process mentioned and recommended later in these guidelines.

If possible, only 75% of the machine capacity should be used to avoid excessive mechanical stress during washing. Leaving at least two hand's width of free space in the washing machine drum could be used as a reference.

To dry the garments, a professional tumbler or drying cabinet with freely programmable time and temperature settings should be available. Sensor-controlled drying programs may not be suitable for the protective clothing, as it could become overdried (risk of damage due to excessive heat) or remain partially moist due to the multiple layers of clothing. Subsequent air drying may, therefore, be necessary.

 **->Household washing machines and tumblers are not recommended because of their possible washing programs and low drum capacity for firefighter protective clothing.**

PREPARATION

- ▶ If the garments are normally soiled, the standard washing process (page 9) should be used.

- ▶ If the garments are extremely contaminated with sooty, oily and greasy substances, it is recommended to give them an additional pretreatment (e.g. prewash), to use an intensive washing process (page 9) or even dry cleaning (not part of these guidelines).

- ▶ Caution: Velcro scuffing!
The garments can become badly damaged by Velcro fasteners in the wash. So all Velcro fasteners must be closed or covered. This also includes closing all buttons and zips, especially the front zip. One can only wash open garments with the S-GARD washing protector which effectively prevents abrasion caused by the front zip.

- ▶ Open all width adjustments on the garments to the maximum degree, so that the washing solvent can penetrate through the entire garment.

- ▶ Do not clamp on any wash care labels, as this could damage the membranes.

- ▶ Before washing, take off all detachable metal pieces (e.g. snap hooks) and removable back signs, and empty the pockets.

- ▶ If there is an integrated rescue system (IRS), it must be removed from the jacket.
- ▶ If there is a grip tab for the Drag-Rescue-Device strap on the jacket, it must be stowed inside before washing.
- ▶ If there is also an integrated seat belt, it must be removed from the trousers.

Particularly membranes can be damaged by snap hooks or metal parts during the spin cycle.

THE THREE STEPS OF CLOTHING CARE

1. Washing treatment

 **->Before washing, please check the care label in your garments.**

If you find care symbols and instructions for a different washing process than the one described here, follow those. The instructions in this brochure do not apply then or only to a limited extent.

- ▶ Selecting a washing process (normal, intensive) depends on the type and degree of soiling. Procedure, please see chart below.
- ▶ It is not recommended to use household laundry detergents and washing powders.
- ▶ Fabric softeners, optical brighteners and bleaching agents must not be used.
- ▶ When washing, the pH value in the washing solvent must be between 7-9.
- ▶ Firefighter protective clothing should be spun at medium speed.

Standard washing process by way of example with products by Seitz				
Parameter	1. Wash bath	2. Wash bath	Rinse (1-3 rinse bath)	Finish (4 rinse bath)
Intensity	Normal wash cycle	Gentle wash cycle	Gentle wash cycle	Gentle wash cycle
Water	Warm, soft	Warm, soft	Cold, hard	Warm, soft
Level	1:6	1:6	1:8	1:5
Product	Viva Sensitive	Viva Sensitive	-	Chemprotect FC
Dosage	16 ml/kg	8 ml/kg	-	40-50 ml/kg
Temperature	40°C	60°C	Cold	35°C
Time	8 min	12 min	3 min	15 min
After end of program	Sequence	Sequence	1 minute medium-speed spin	5 minutes medium-speed interval spin drying

Intensive washing process for clothes heavily soiled with sooty, oily and greasy substances by way of example with products by Seitz				
Parameter	1. Wash bath	2. Wash bath	Rinse (1-3 rinse bath)	Finish (4 rinse bath)
Intensity	Normal wash cycle	Gentle wash cycle	Gentle wash cycle	Gentle wash cycle
Water	Warm, soft	Warm, soft	Cold, hard	Warm, soft
Level	1:6	1:6	1:8	1:5
Product	Viva Sensitive	Viva Sensitive Viva Blue	-	Chemprotect FC
Dosage	16 ml/kg	8 ml/kg 2ml/kg	-	40-50 ml/kg
Temperature	40°C	60°C	Cold	35°C
Time	8 min	12 min	3 min	15 min
After end of program	Sequence	Sequence	1 minute medium-speed spin	5 minutes medium-speed

2. FC finish

It is the compulsory requirement of EN 469 that the garments repel water and selected chemicals, which is achieved by washing in an impregnation with fluorocarbon-resin preparations. Reimpregnation is, therefore, necessary.

 -> **In principle, the clothing should only be reimpregnated when required.**

Firefighter protective clothing with upper fabrics that are provided with a long-term FC finish like e.g. Repel+, Green Repel or Powershell only have to be reimpregnated after an average of 30-40 wash cycles, depending on the intensity of use.

It is nevertheless necessary to test the water repellency regularly by means of a spray test. Intensive use or heavy soiling of the clothing may make reimpregnation necessary already much sooner.

Existing usual FC finishes can be reactivated effectively with tumbler treatments (temperatures briefly up to 80°C), which is why it is recommended to reimpregnate the clothing on average after 3-5 washing and drying cycles.

The impregnation should be checked before washing in a sort of quick test by spraying or dripping on some water: if the water drops stay on the surface of the textile, impregnation will not be necessary; if they sink into the textile, one should reimpregnate the garments.

After dry cleaning, the impregnation should always be renewed.

The actual FC finish is done after laundering in the washing machine. To obtain the best possible result, please make sure to follow the instructions.

- ▶ The protective clothing that is to be provided with a finish must be washed before this treatment.
Only garments that are clean and free from grease can permanently take on impregnating agents.
- ▶ One must make sure there are no detergent residues left in the garments, i.e. washing should consist of at least four rinsing baths.
- ▶ No further detergents, cleaning agents or care products may be added to the finishing liquor.
- ▶ Do not use more than the indicated dosage.
- ▶ The fluorocarbon resin finish should be dosed with a metering pump. If dosing is done manually, e.g. by using the dispenser, make sure no detergent leftovers get into the finishing liquor.
- ▶ Heat the liquor to 35°C and use it for 15 minutes to guarantee a uniform distribution of the impregnating chemical.
- ▶ Interval spin drying is recommended for maximum 5 minutes.

3. Drying

If a reimpregnation preceded, machine drying should be carried out in principle.

 **->Do not exceed the drying temperature indicated in the garment's care symbol, as this could cause damage to the garment.**

- ▶ Drying is done in a tumble dryer at a temperature of approx. 60°C. This corresponds to the care symbol „Tumble Dryer With One Dot“.
- ▶ To enable a long-lasting fixation of the FC impregnation, one can shortly raise the temperature of the tumble dryer after the actual drying to approx. 80°C to obtain the desired effect. Do this for 5 minutes.
- ▶ After drying, slight residual moisture may remain in the garments, especially in waterproof and multi-layer areas like e.g. under suction barriers. That is why the garments must be stored in a well-ventilated, dry and dark place.
If there is too much residual moisture, turn the protective clothing inside out and, if necessary, dry a second time according to the label. The garments can also finish drying in the open air.
- ▶ Testing the finish by splashing water onto it should not be done until the garment has cooled down or, even better, after a few hours.

4. Optional: ironing

- ▶ Can be done as an additional treatment on medium.

 ->Do not iron over the reflective bands.

S-GARD

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