

PFC Policy

Mammut Sports Group

Version 1.0
Date December 2016



MAMMUT
Absolute alpine.

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1. INTRODUCTION

Mammut is a market leader in technical and innovative equipment for alpine activities. Our demanding customers, who have been placing their trust in our brand for over 150 years, expect our products to deliver excellent performance together with maximum dependability and durability.

To ensure reliable and lasting weather protection, outdoor products are given a durable water-repellent protective layer. To meet the highest performance demands, the outer materials are also treated with perfluorinated and polyfluorinated chemicals (PFCs). As PFCs are barely degradable in nature, Mammut has set itself the strategic goal of progressively switching all treatments for its clothing range to PFC-free alternatives by 2022.

1.1 Project scope

This Policy applies to the water-repellent treatment (Durable Water Repellency - DWR) for materials used in our regular clothing collection. This excludes special make-up styles (SMUs), trims and accessories.

Different product requirements apply in the footwear and hardware product groups, where PFCs are also used to provide durable water-repellent properties, and the supply chains differ significantly from those for our clothing range. Procedures for perfluorinated and polyfluorinated chemicals (PFCs) in these product groups will therefore be defined in separate policies (publication scheduled for late 2017).

1.2 Perfluorinated and polyfluorinated chemicals (PFCs)

PFCs are a group of over 800 substances. As well as their effectiveness in repelling water, dirt and oil, they also offer high mechanical, thermal and chemical stability. This makes PFCs ideal for long-term applications under extreme conditions.

In the outdoor industry, PFCs are used as waterproofing treatments capable of withstanding multiple washes and repeated tough use. As a Durable Water Repellent (DWR) protective layer, PFCs are responsible for the typical beading effect and prevent the outermost layer of fabric from becoming saturated with water or heavily soiled.

This is important as dry and clean outer materials help to preserve the product's functionality – perspiration is wicked outwards in the form of water vapor, keeping the wearer warm and dry. And it's not just about comfort. In particular in high alpine terrain, dry and warm clothing is important for the wearer's performance, safety and health.

As well as ensuring lasting protection and durable products, the extreme stability of PFCs also means that they are difficult or impossible to break down in the environment and can therefore accumulate. To protect the environment, Mammut is working to eliminate PFCs from its supply chain. Mammut is pursuing the ambitious goal of progressively switching all treatments for its entire clothing range to PFC-free alternatives by 2022.



1.3 Alternatives

In comparison to PFC-based DWR treatments, the currently available paraffin, silicone or dendrimer-based PFC-free alternatives still present drawbacks in terms of their water-repellent and dirt-repellent performance, in particular durability. Furthermore, they have no oil-repellent effect. This reduced effectiveness in repelling dirt and the absence of any oil-repellent effect results in faster contamination of the outer materials and membranes, which in turn negatively impacts on the product's functionality and durability.

These restrictions mean that the currently available PFC-free alternatives are suitable mainly for products with lower performance requirements. However, the development of PFC-free alternatives is very dynamic and new and improved products are constantly appearing on the market. We are therefore assuming that in time PFC-free alternatives will be capable of meeting performance, safety and durability requirements in higher performance segments as well.



2. MAMMUT ROADMAP TO ZERO PFC¹

We are progressively working toward the ambitious goal of eliminating all PFC treatments for our clothing range or replacing them with PFC-free alternatives by 2022. To reconcile our demanding customers' high requirements and expectations for our products as closely as possible with a switch to PFC-free alternatives, we are following a performance-oriented approach.

Mammut has divided its entire clothing portfolio into the three performance segments of FUNDAMENTAL, COMPETENCE and PROFESSIONAL. We have defined minimum requirements for the DWR treatment for each segment, based on the intended applications and expected usage intensities, and set ambitious but realistic deadlines for the elimination of PFCs from the supply chain. This progressive, performance-oriented approach allows us to ensure the fastest possible progress with the PFC phase-out, while still providing our customers with performance tailored optimally to their needs when they purchase a Mammut product.

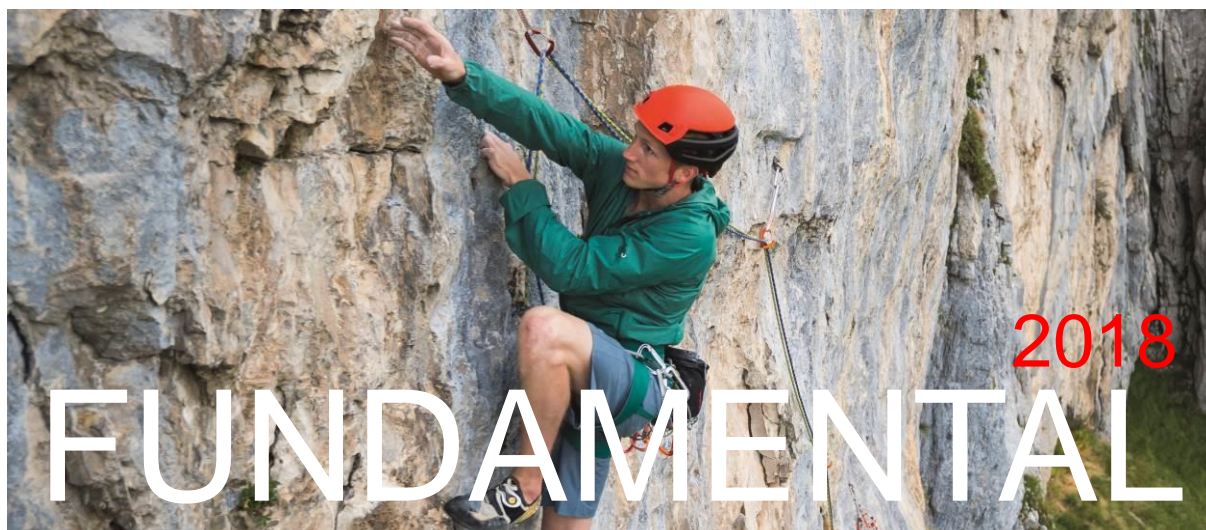
We feel it would be inadvisable to immediately switch the entire product portfolio to PFC-free alternatives as this would involve significant impairments in the reliability, safety, quality and durability of our products. As a market leader in technical mountain sports equipment, we accept no compromises in relation to our customers' safety: they must be able to rely on their Mammut equipment in all situations. In terms of quality and durability too, we have always set the highest standards for our products. Because we are convinced that quality and durability provide the greatest sustainability.

MAMMUT ROADMAP TO ZERO PFC



¹ The deadlines stated relate to the elimination of PFCs from our supply chain. From the time at which PFCs are eliminated from the supply chain, it will then take up to two years for the new products to be available in stores.





The **FUNDAMENTAL** segment includes our clothing ranges for sports climbers and urban use. The products in this segment meet the highest requirements in terms of robustness, tailoring and design and, where required, have good water-repellent properties. We have set ourselves the goal of completely eliminating the use of PFC-based treatments in this segment or replacing them with PFC-free alternatives by the end of 2018. This will take the total proportion of PFC-free materials used for our clothing to 80%.



The **COMPETENCE** segment includes products for use in the mountains and which meet ambitious mountain sports enthusiasts' high requirements for functionality and quality. The basic requirements in this segment encompass very good water-repellent and dirt-repellent properties for weather protection clothing. We have set ourselves the goal of eliminating PFC-based DWR treatments in the Competence segment or replacing them with PFC-free alternatives by the end of 2020 at the latest. When we achieve this interim goal, 95% of the total volume of materials used for our clothing will already be PFC-free.





The **PROFESSIONAL** segment includes top-performance products for ambitious and professional alpinists, developed for uncompromising use in mountain environments and where maximum durable water-repellent, dirt-repellent and oil-repellent performance and robustness are essential for the wearer's protection. Only the best available materials and technologies are used in this segment. We have set ourselves the goal of eliminating PFC-based DWR treatments in the Professional segment or replacing them with PFC-free alternatives by the end of 2022 at the latest. The conversion of the Professional segment in 2022 will mark the achievement of our overall goal of a 100% PFC-free clothing line.



3. BEST PRACTICE MANAGEMENT OF PFCs

Viewed across the entire life cycle, the environmental risks of PFC usage are by far the greatest during the production process. Mammut therefore places great emphasis on the consistent application of best practices and maximum process control for PFCs in the supply chain. The use of low-emission PFCs, controlled procedures and comprehensive emission protection measures will specifically eliminate environmental risks and minimize the potentially negative impacts on the environment of PFC processing.

3.1 PFC chemistry

Only the highest quality low-emission PFCs are permitted for the production of our clothing. In this respect, we maintain close contact with industry partners and continuously coordinate the use of optimized chemicals.

3.2 Requirements for suppliers

Where possible, Mammut selects [bluesign® system partners](#) as material suppliers. Suppliers who use PFCs in their processes are also required to comply with the Mammut Sports Group [Supplier Guidelines for the Use of PFCs](#).

4. CARE

Correct care of weather protection clothing is vital to ensure that products maintain their functionality over long periods of time and need to be replaced or given new waterproofing treatments as seldom as possible. If a new waterproofing treatment is required, the most environmentally friendly products possible should be applied in a controlled process to minimize potential risks to health and the environment.

4.1 Information

As a company and in cooperation with industry associations (EOG, BSI), competitors and retailers, Mammut is taking active steps to emphasize to consumers the [correct care](#) required for their products. Regular care will help our products maintain their functionality at an optimum level for as long as possible and means that repeat waterproofing or replacement will be required only rarely, significantly reducing their environmental footprint.

4.2 Care products

Mammut will be discontinuing all sales of PFC-based care products for domestic use by the end of 2017 and stocking only PFC-free care products in its stores.

4.3 Waterproofing service

Mammut is looking into the introduction of a professional waterproofing service in Mammut stores. This should ensure that repeat waterproofing treatments are applied in a controlled procedure with appropriate protection from emissions to achieve the best possible and long-lasting results.



5. DISPOSAL

To minimize PFCs entering the environment at the end of products' service life, clothing treated with PFCs should be disposed of safely in conventional garbage incineration facilities. Post-consumer recycling of textile laminates is currently not scalable on an industrial level. A recycling program for functional clothing introduced by W.L. Gore, also involving Mammut, was discontinued due to the very low return rate.

6. RESEARCH & DEVELOPMENT

Mammut is not pursuing its own development of DWR solutions. Together with competitors and industry associations, Mammut is supporting the textile chemicals industry, material manufacturers and textile finishers with the development of PFC-free treatments for textiles which meet maximum performance requirements. In particular, Mammut is playing an active role by passing on relevant know-how, defining and communicating requirements, as well as through intensive field tests of new products and technologies.

7. PARTNERSHIPS

Some challenges are too great to be able to resolve them alone. As a medium-sized company, our resources and influence on global supply chains are limited. Without strong partners, we have only a limited ability to drive the development of PFC-free alternatives and the elimination or substitution of PFC treatments. Partnership-based cooperation with competitors, textile finishers, material manufacturers and the textile chemical industry is therefore critical to achieve our ambitious goals in relation to the phasing out of PFCs.

7.1 bluesign®

Mammut has been a bluesign® system partner since 2011 and, as such, is committed to implementing the stringent bluesign® system. This standard regulates, in particular, all relevant impurities occurring in allowed PFCs according to strict low limits.

Together with bluesign technologies, we are working to continue to improve our internal chemical management system and ensure the systematic implementation of best practices.

7.2 W.L. Gore & Associates (GORE-TEX® products)

As a longstanding strategic partner, Mammut is supporting the approach followed by W.L. Gore (GORE-TEX®), based on an integrated and scientific examination of the ecological effects to continuously improve materials' environmental footprint.

Together with W.L. Gore, Mammut is pursuing the aim of progressively eliminating PFC treatments in the GORE-TEX® product portfolio or replacing them with PFC-free alternatives, without any adverse effects on the excellent functionality and durability of GORE-TEX® products. In pursuit of this aim, in the period up until 2020, W.L. Gore will be investing over 15 million US dollars in the search for alternative durable water-repellent (DWR) treatments.

Mammut will be launching the first PFC-free DWR GORE-TEX® products in its fall/winter 2018/19 collection.



7.3 European Outdoor Group (EOG)

One of the EOG's sustainability focus efforts is building capacity for its members with regards to chemical management, including in the area of PFCs. As a founding member, and current member of the EOG board, Mammut is a key collaborator in this effort. Together with our EOG peers, we are pursuing the development of best practices in chemicals management as an industry standard.

7.4 Federal Association of the German Sports Goods Industry (BSI)

As an active member of the CSR working group, Mammut is involved in the BSI's current projects in relation to PFC phase-out, product care and retailer/consumer information.

7.5 Competitors

Mammut also engages in continuous exchange outside the regular platforms (EOG, BSI) with relevant competitors in relation to the phasing out of PFCs, with the aim of identifying and exploiting potential for a joint approach. In particular for overlapping areas in supply chains, a joint approach and pooling of strengths and resources will be important success factors in achieving the ambitious objectives.

8. INFORMATION & COMMUNICATION

We place great importance on high transparency for consumers and other stakeholders in relation to PFC usage and the phasing out of PFCs. Our customers should be in a position to make an informed decision as to which product is best suited to their application and usage intensity and in line with their needs. To achieve these goals, Mammut uses the following communication tools:

8.1 PFC Policy

This PFC Policy provides our customers and stakeholders with an overview of our PFC strategy. The PFC Policy is reviewed at regular intervals and updated. In the interests of transparency, all previous versions of the Policy can be viewed online.

8.2 Website

An overview of the PFC issue and answers to key questions can be found on our [website](#). Furthermore, in the online shop, all products from the clothing collection produced without PFC-based treatments are identified by the following symbol:



8.3 Blog

Our [PFC Blog](#) provides customers and stakeholders with the latest information and regular updates on our strategy, considerations, goals and actions in relation to the phasing out of PFCs. We produce six-monthly updates reporting on the steps taken over the previous period and the current situation with regard to the PFC phase-out. When the deadlines stated in this Policy for the PFC phase-outs in the individual segments arrive, we will report in the blog as to whether we were able to meet the goals set.

8.4 Product

At the moment, our PFC-free weather protection clothing (outer layer garments with water/wind-repellent or insulating properties) is identified by the "PFC-free" symbol on the care label. Our mid-layers, T-shirts and underwear are also PFC-free, but are not labeled as such. During the pilot phase, we found out that many customers were confused by this distinction and found it unclear. We have therefore decided to extend the labeling of products manufactured without PFC-based treatments to the entire clothing collection.

9. CONTINUOUS IMPROVEMENT

Management of chemicals in a multi-step procurement chain is a highly complex task. We are constantly working to improve our chemical management, to meet high requirements for sustainability throughout the textile supply chain, as well as building up specific know-how and resources.



Mammut Guidance for Suppliers

Best Environmental Practice in PFC-Management

1. Capacity building

- Raise environmental awareness with all employees

2. Chemicals

- Use PFC treatments only if absolutely necessary to obtain effects prescribed by the customer
- Use optimized PFC products only
- Mix only what will be used in the scheduled run
- Minimize the amount of active substances in the recipe
- Try to reuse/recycle residual liquors/surplus of liquors
- Follow advice of the Material Safety Data Sheet (MSTS) and Technical Data Sheet (TDS) with regard to handling (use, storage)
- Consider applying PEC/PNEC calculation performed by experts

3. Equipment

- Maintain all equipment in excellent working condition and conduct periodic operations audits
- Use optimized application devices with minimized residual liquors; low add-on techniques; if padding is used try to minimize the residual liquor volume by minimizing the volume of the padding device (foulard) by means of displacers etc.
- Use automated dosing system with integrated self learning system to calculate exact pick-up and liquor consumption
- Optimize curing conditions in the stenter frame

4. Planning

- Optimize scheduling to avoid bath changes

5. Operations

- Do not discharge active substances to wastewater path directly; collect liquors containing active substances separately and ensure their incineration
- Provide sufficient and appropriate PPE (gloves, goggles, gas masks etc.)
- When dealing with fluorochemicals with extenders, follow strictly the advice in the TDS regarding curing time and curing temperature
- Do not use fluorocarbons for spraying without customized equipment and control devices

