Pressure group Greenpeace is deliberately targeting major outdoor brands in its new report highlighting the presence of polyfluorinated chemicals (PFCs) in snow and water samples from remote mountain areas. It knows there are other sources of PFCs than water-repellent finishes in outdoor clothing, but prefers to flag up the perceived failings of outdoor brands first.

# Why Greenpeace targets outdoor brands

Following a report in 2012 criticising outdoor brands for the presence of polyfluorinated chemicals (PFCs) in the water- and oil-repellency finishes in their clothing, campaign group Greenpeace has turned its attention in a new report to the presence of PFCs in snow and lakes in mountain areas that are popular among outdoor enthusiasts.

In a press release introducing the new report, and in the document itself, entitled 'Footprints in the Snow', Greenpeace suggests (without offering proof) there is a link between the presence of PFCs in samples it has taken of snow and lake water and in the jackets and other clothing and footwear that outdoor enthusiasts wear.

Eight Greenpeace teams led expeditions to remote mountain ranges and lakes on three continents in May and June this year. They took snow and water samples in Chile, China, Italy, three Nordic countries, Russia, Slovakia, Switzerland and Turkey, and analysed them for per- and poly-fluorinated chemicals. The results showed traces of PFCs in snow samples from all of the sites, says Mirjam Kopp, Greenpeace Switzerland toxics campaigner. In the 2015 studies, researchers found, for example, perfluorooctanoic acid (PFOA) at levels of 0.348 nanogrammes per litre (ng/l) in Slovakia and of 0.209 ng/l in Italy. Greenpeace has argued that these figures compare unfavourably with a level of PFOA of 0.0665 ng/l that a 2014 research paper (Codling G, et al) attributed to a sample from the melting snowpack in a boreal forest in Sweden.

Ms Kopp adds that it was "deeply concerning" to see that these chemicals have reached remote areas such as the High Tatras mountains in Slovakia, the Torres del Paine National Park in



*Greenpeace says samples of snow and lake water it has taken in remote mountain areas contain PFCs. The campaign group knows the chemicals have not necessarily come from outdoor apparel but says it is deliberately targeting the outdoor industry first in a new anti-PFC campaign because it wants outdoor brands to lead the way in bringing non-PFC alternatives to market.*

Mammut

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southern Chile, the Altai Mountains in Siberia and in the Monti Sibillini National Park in Italy, all of which provided samples for the study.

"PFCs such as the ones currently used by outdoor brands are being transported and deposited even in remote mountainous regions around the world," Greenpeace continues. "The outdoor sector uses images of beautiful mountain landscapes, majestic forests, freshly fallen snow and clean rivers to convey the idea of freedom and love of nature. These positive images are heavily promoted by manufacturers of all-weather clothing and have brought strong double-digit growth in recent years. It is ironic to think that companies who depend on nature for their business willingly release dangerous chemicals into the environment."

## In search of new solutions

In typical fashion, the campaign group goes on to name names, giving The North Face, Columbia, Patagonia, Salewa and Mammut as examples of outdoor brands that have "shown little sense of responsibility when it comes to eliminating hazardous chemicals such as PFCs".

At the time of the 2012 dispute, some outdoor brands argued that their use of solutions based on C6 chemistry rather than C8, meant the protective coatings on their clothes and shoes were risk-free. One of those named, Mammut, said in 2012: "As an absolute alpine sports brand our clients demand the highest performance of our garments. At the moment there is simply no way around some of these PFCs at equal product quality. This is an issue for the whole outdoor industry and everyone is working on new solutions."

## Countless tests

Three years on, Mammut's response to the new report is that the quality, safety, functionality, reliability and durability of its products remain its top priorities. "We make use of the best available technology in our products," the Swiss brand says. "In countless tests neither Mammut nor any other brand or scientific organisation will identify any PFC-free treatment available on the market that could guarantee a level of performance comparable to that using PFCs."

Mammut says a particular problem is the reduced durability of many alternative DWR treatments. The production of any product leaves an ecological footprint, it points out, caused by a variety of factors including choice of raw materials, use of water and energy and transportation distance, but durability and proper disposal of products is part of the same picture.

## Of lasting appeal

"It is important for us, as manufacturers, to take all these factors into consideration and weigh them against each other in complex decision-making processes," Mammut continues. "For this purpose, when considering the whole product lifecycle, durability stands out by far as the most important factor in reducing the ecological footprint. Buying a high-quality jacket which performs its function over a long period of time is more resource-efficient and more environmentally friendly than using one that needs to be often re-impregnated or replaced. Quality and durability provide the greatest sustainability."

It says the PFCs it uses are carefully chosen and "responsible" (it works only with partners that it says can ensure "the highest environmental standards in dealing with PFCs"; partners must be bluesign-certified). The alternatives available to it at the moment are, Mammut claims, "short-lived, less efficient and not necessarily environmentally friendly". It remains hopeful of improvements in the alternative technologies available and, for example, applauds the decision its long-term partner WL Gore has taken to invest €15 million "in the coming years" in new, PFC-free methods of endowing fabric with water- and oil-repellency.

It says it takes the question of employing PFCs seriously and uses them on its jackets and other products "only when absolutely necessary" to protect wearers against extreme weather conditions in high Alpine conditions. It says this functionality must be retained even after repeated wear. Nevertheless, in 2013 Mammut produced 71% of all the metres of fabric it uses in its clothing without any PFCs and in 2014 this figure rose to 77%.



*According to Greenpeace, if outdoor brands want to use people's love of the mountains to market their garments, they must be prepared to answer questions if traces of PFCs show up in the snow.*

*Abe Blair/Patagonia*

PROOF



*Perhaps the strongest argument brands can present against using currently available non-PFC alternatives is that they do not last, decreasing the durability of the product. They point out that the longer the lifecycle of a garment, the smaller its environmental footprint will be.*

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## Patagonia is getting close

In its response to 'Footprints in the Snow', Patagonia points out that it has conducted extensive research of its own into DWR chemistry with the aim of finding technologies that will allow it to continue to have the high performance it wants in the jackets and other garments it offers to mountain enthusiasts, but with less environmental impact than PFCs. It says it has tested "about a dozen" fluorocarbon-free finishes for its garments, and that it is "getting close".

Patagonia goes on to say: "For the past decade, we've carefully researched and tested every available fluorocarbon-free alternative. Many finishes, including waxes and silicones, will lower the surface tension of a fabric enough to cause water to bead up and disperse rather than saturate, but they are easily contaminated by dirt and oil and rapidly lose their effectiveness, reducing the lifetime of a garment." Like Mammut, it argues that having to replace items of clothing more frequently because they fail to function as well as outdoor wearers would like will have a greater impact on the environment than using PFCs, especially the shorter-chain PFCs many brands are moving to, in a long-lasting product. However, it says it does not feel comfortable "promising a path forward that hasn't yet been identified", calling the suggestion that it should do so unfair "given the complexity of this challenge."

## More ambition required

Greenpeace claims to have heard all this before. The campaign group says companies need to set "clear and ambitious" deadlines for moving to alternative technologies. Mirjam Kopp says she hopes Patagonia's tests bring success and that the company will soon be able to announce new DWR alternatives but insists she has heard the argument about longer-lasting garments having a lower environmental impact from a number of brands. None of these brands, so far, has shown her a study demonstrating that wax- or silicone-based alternatives really are less effective. "I'd like to see the data," she says. "It's great to make products with a long lifespan, but in a lot of cases that's not why consumers buy the products; instead they buy garments because they are fashionable, and I'd like to see data about that too."

Ms Kopp claims that outdoor brands now sell their products to "a broad audience" and that it's not uncommon to see people wearing very expensive and high-spec jackets "just to cycle around the city". She suggested that these jackets need not have the same DWR capability as ones that will genuinely be required to protect their wearers in harsh mountain conditions in winter.

On the subject of setting target dates for moving away from PFCs, she says: "It's important to set deadlines. Clear and ambitious deadlines will help the outdoor industry bring to market the alternative technologies that we need."

## Lead by example

'Footprints in the Snow' offers no proof that the PFCs in the samples the Greenpeace researchers found came from outdoor garments or footwear, but Mirjam Kopp says that her organisation has deliberately chosen to "target" the outdoor industry ahead of other prominent users of PFCs. "Outdoor brands rely on using nature in marketing," she says, "and they frequently make a point of saying that they care about sustainability. What we think, therefore, is that the outdoor industry needs to be a leader in eliminating PFCs. It needs to set a good example."

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