Chemistry for Any Weather – Part II

Executive Summary – Outdoor Report 2013

GREENPEACE

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Adidas
TX GTX ActS j
jacket **(GER)**

Columbia
Evo Fly Jacket
children's jacket **(GER)**

Jack Wolfskin
Topaz Jacket Women
jacket **(China)**

Jack Wolfskin
Nebraska Parka
jacket **(GER)**

Kaikkialla
Jemina Coat
jacket **(GER)**

Mammut
Extreme Arctic Mitten
gloves **(CH)**

Mammut
Miva Light Jacket
Women, jacket **(CH)**

Northland
EXO Pro STR Monie JKT
jacket **(A)**

Patagonia
W'S Powder Bowl JKT
jacket **(US)**

Salewa
Kali GTX M JKT
jacket **(GER)**

Schöffel
Keaton
jacket **(GER)**

Seven Summits
Monte Viso
jacket **(A)**

The North Face
Meru Glove
gloves **(US)**

The North Face
All Terrain II
jacket **(GER)**

The North Face
W Impervious Jacket
jacket **(US)**

Vaude
Kids Rain Jacket
children's jacket **(GER)**

Vaude
Cheilon Stretch Jacket 2
jacket **(GER)**

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Summary

The latest investigation by Greenpeace Germany reveals that outdoor clothing contains chemicals that are hazardous to the environment and to human health. This follows an analysis conducted on items produced and sold by various outdoor clothing brands.
From the fifteen jackets and two pairs of gloves tested, all samples except one were found to contain concentrations of both perfluorinated and polyfluorinated chemicals (PFCs). The one exception was a PFC-free declared jacket which was contaminated with perfluorinated chemicals (ionic PFCs).
The investigation also found that these hazardous chemicals are released into the air from the items of clothing.
A shift in the type of PFCs being used was also observed, away from chemicals that are known to be hazardous, towards chemicals that are less well researched, but potentially just as bad.
Besides PFCs, other hazardous chemicals – nonylphenol ethoxylates (NPEs) and phthalates – were also found to be present in the clothing.

In its 2012 report *Chemistry for Any Weather*[1], Greenpeace Germany found high concentrations of perfluorinated and polyfluorinated compounds (PFCs) in outdoor jackets. In September 2013 Greenpeace Germany once again commissioned several laboratories to test outdoor clothing for residues of ionic perfluorinated chemicals and volatile polyfluorinated chemicals.

In addition to the tests for PFC residues, another element was investigated – the analysis of volatile PFCs that evaporate from clothing into the air. Greenpeace Germany tested whether PFCs are being emitted from the items of clothing, and at what level. So far, there have been only a few studies on the evaporation of PFCs from textiles[2]. Some have already shown that there are higher concentrations of volatile PFCs in the air in stores selling outdoor clothing than in rooms without outdoor gear.[3] It is therefore likely that volatile PFCs such as FTOH or FTA, used in the production of textiles and which remain as residues in the clothes, are released into the surrounding air. To find out, Greenpeace Germany commissioned a laboratory to measure PFCs released into the air within a test chamber, from a selection of nine of the jackets. These specific tests focused on the volatile PFCs, a group of chemicals that are currently only analysed in a small number of laboratories.

PFCs are waterproof, oil and dirt repellent and are used as a "durable water repellent" (DWR) in the finishing of textiles. PFCs reach the environment either directly as a result of their use in the production process, or indirectly through the use and disposal of products containing PFCs. Many PFCs are highly persistent and do not readily break down once released into the environment. PFCs have been detected in the environment around the globe – in animals, in human blood and in breast milk. Some accumulate in food, in drinking water and in the air we breathe, and thus pass into the body.

In previous reports, Greenpeace Germany found the presence of some of these substances in waterproof jackets and trousers, in leather gloves, and, most recently, in swimwear. Although limited studies into their presence in textiles have been conducted, the most commonly found PFCs are the perfluorocarbonic and perfluorosulfonic acids (*ionic perfluorinated chemicals*), as well as fluorotelomer alcohols and

fluorotelomer acrylates (*volatile polyfluorinated chemicals*)[4]. In earlier research, Greenpeace found ionic PFCs in wastewater from Chinese textile factories[5] and in fish for consumption in China[6,7]. PFOA, PFOS and other ionic PFC have also been detected in drinking water.[8]

1 Greenpeace e.V. (2012), *Chemistry for Any Weather – Greenpeace tests outdoor clothes for perfluorinated toxins* report (2012), http://www.greenpeace.de/fileadmin/gpd/user_upload/themen/chemie/gp_outdoor_report_2012_fol_final_neu_03_es.pdf

2 Schlummer M et al (2013), Detection of fluorotelomer alcohols in indoor environments and their relevance for human exposure, Environ Int. 2013 57-58:42-9.

3 Langer V, Dreyer A, Ebinghaus R (2010). Polyfluorinated compounds in residential and nonresidential indoor air. Environ Sci Technol 2010, 44:8075-8081

4 Of the few studies that have been reported for textiles, PFCAs, PFSAs and FTOHs have frequently been reported in outdoor clothing and footwear articles and swimwear (SSNC FoEN 2006, Greenpeace 2012c, Herzke et al. 2012, Schlummer 2013, Greenpeace 2013b, Greenpeace 2013c) (from PT1 technical report)

5 Greenpeace 2011, Investigation of hazardous chemical discharges from two textile-manufacturing facilities in China http://www.greenpeace.to/greenpeace/wp-content/uploads/2011/07/Textilemanufacture_China.pdf

6 Greenpeace 2010, http://www.greenpeace.org/international/en/publications/reports/Swimming-in-Chemicals/

7 More detailed information on PFCs can be found in the Greenpeace Chemistry for Any Weather report:

8 Wilhelm et al (2012): Occurrence of perfluorinated compounds (PFCs) in drinking water of North Rhine-Westphalia, Germany and new pproach to assess drinking water contamination by shorter-chained C4-C7 PFCs, Int J Hyg Environ Health. 2010 Jun; 213(3):224-32.

Table 1 purchased and tested products for Outdoor Report 2013

Brand	Country of production	Product description	Technology/ coating or finish	Label	Store/country
Adidas	China	TX GTX ActS j (jacket)	GORE-TEX, Formotion		outdoortrends.de **(GER)**
Columbia	Vietnam	Evo Fly Jacket (children's jacket)	Omni-Heat Thermal Reflective, Omni-Tech Waterproof Breathable		Globetrotter Hamburg **(GER)**
Jack Wolfskin	Vietnam	Topaz Jacket Women (jacket)	TEXAPORE		Jack Wolfskin Beijing **(China)**
Jack Wolfskin	Thailand	Nebraska Parka (jacket)	TEXAPORE, Nanuk 300		Globetrotter Hamburg **(GER)**
Kaikkialla	China	Jemina Coat (jacket)	Bionic Finish eco, Sympa-tex, Öko-tex Standard 100, Primaloft Eco	Textiles Vertrauen, PTFE FREE, Bluesign Systempartner	Globetrotter Hamburg **(GER)**
Mammut	Vietnam	Extreme Arctic Mitten (gloves)	Down-filled glove for maximum warmth	Fair Wear Foundation	www.mammut.ch **(CH)**
Mammut	China	Miva Light Jacket Women (jacket)	Pertex Quantum	Fair Wear Foundation	www.mammut.ch **(CH)**
Northland	China	EXO Pro STR Monie JKT (jacket)	Exotherm pro STR		Northland Outdoor-Shop Wien **(A)**
Patagonia	Vietnam	W'S Powder Bowl JKT (jacket)	GORE-TEX, Recco-Advan-ced Rescue Technology		Patagonia San Francisco **(US)**
Salewa	unknown	Kali GTX M JKT (jacket)	GORE-TEX		Sport Scheck Hamburg **(GER)**
Schöffel	China	Keaton (jacket)	Down-filled jacket, Venturi membrane		cortexpower.de **(GER)**
Seven Summits	China	Monte Viso (jacket)	asd-action shield (taped seams + breathable), Fibre-care (no pilling)		Ebyl Wien **(A)**
The North Face	China	Meru Glove (gloves)	GORE-TEX, PrimaLoft One		The North Face San Francisco **(US)**
The North Face	Indonesia	All Terrain II (jacket)	GORE-TEX		Sport Scheck, Hamburg **(GER)**
The North Face	Indonesia	W Impervious Jacket (jacket)	GORE-TEX		The North Face San Francisco **(US)**
Vaude	Vietnam	Kids Rain Jacket (children's jacket)	Ceplex-Membrane	Bluesign Systempartner	Sport Scheck Hamburg **(GER)**
Vaude	China	Cheilon Stretch Jacket 2 (jacket)	Ceplex pro	Bluesign Systempartner	outdoortrends.de (via amazon.de) **(GER)**

Colored marked items were not only tested for PFC residues in the materials but also tested in test chambers for emission of volatile FTOH and FTA

The test chamber methodology is a well-known method for testing materials to see if, for example, carpets, textiles and other products evaporate volatile substances. This study specifically looked at the evaporation of volatile PFCs from textiles expressed as emission rates of FTOH and FTA and gives information on the potential for outdoor textiles to release volatile PFC into the air. The manufacture and storage of textiles might therefore contribute to outdoor or indoor air quality.

The volatile PFCs such as FTOH are poorly investigated and monitored even though they are widely used in textile production. The material tests in this study show that the concentrations of volatile PFCs, in particular FTOH in outdoor textiles are often 10 to 100 times higher than of ionic PFC residues. Because they are more volatile FTOH and FTA are more likely to be present in air and water. However, to date there are few studies on the release of these chemicals, not only into air but also into water i.e. via washing machines.

About the products

The products (the majority of which were waterproof jackets and gloves for adults but also included two children's jacket), were sold by 12 outdoor brands, with one product per brand (apart from 3 products by The North Face, 2 by Mammut, 2 by Jack Wolfskin and 2 by Vaude. They were purchased not only in German-speaking countries, as for the 2012 report, but also in China and the United States. The majority were made in China (8), followed by Vietnam (5), Indonesia (2) and Thailand (1); for one product, a Salewa jacket, the country of manufacture was undisclosed, showing a lack of transparency which is a cause for concern.

Materials from all samples were analysed for residues of perfluorinated and polyfluorinated compounds, alkylphenols and alkylphenol ethoxylates, phthalates and antimony. One sample was analysed for organotins. The samples highlighted in grey were also analysed for the emission of volatile PFCs into the air in test chambers.

What are PFCs?

Per and poly fluorinated chemicals (PFCs) are used in many industrial processes and consumer products, including textile products, due to their unique chemical properties, primarily due to their stability and ability to repel both water and oil.

Many PFCs, especially **ionic perfluorinated chemicals** such as PFOS and PFOA, are highly persistent and do not readily break down once released into the environment, which has led to their presence across the planet, even in very remote regions. Ionic PFCs have been reported in a wide range of both aquatic and terrestrial biota, due to their ability to bioaccumulate, as well as in human blood and milk in the general population in many countries around the world. Studies show that PFCs such as PFOS and PFOA can cause adverse impacts both during development and during adulthood, acting as hormone disruptors, with impacts on the reproductive system and the immune system, as well as being potentially carcinogenic in animal tests.

Volatile polyfluorinated chemicals such as FTOHs and FTAs, are generally used as precursors during manufacturing processes. However, FTOHs can be transformed into ionic PFCs (such as PFOS and PFOA) either through biotransformation, or abiotically in the atmosphere. In addition, there are indications that biotransformation can form intermediate products in the body that can be more harmful than the end product. Information about the toxicology of FTOH itself is scarce, though some studies indicate that some FTOHs show endocrine disrupting activity, including disturbing fish reproduction. In addition to these direct hazards from FTOH, the potential for FTOHs to transform into other ionic PFCs, poses an additional hazard. Precursor PFCs, such as FTOHs, are volatile and have frequently been detected in air samples, even in remote areas.[1]

Both ionic and volatile PFCs range from **long chained** to **short chained** compounds. PFHxA and other shorter-chained alternatives are as persistent in the environment as the long-chained PFCs (Wang 2013). Therefore, the increased global production and use of these chemicals and their potential precursors that is currently taking place, will lead to increasing widespread environmental and human exposure that will last for the foreseeable future (Wang 2013). If other risks associated with short-chain PFCs are discovered, it will take decades for global environmental levels of these short-chain PFCs to be reduced as a result of any regulatory action (Wang 2013). Due to their persistence in the environment, Greenpeace does not consider short-chained PFCs as safe alternative (for more information see Greenpeace 2012).

The ionic PFC PFOS been classified as a persistent organic pollutant (POP) under the Stockholm Convention, a global treaty that requires contracting parties to take measures to restrict the production and use of PFOS,[2] and the marketing and use of PFOS within the EU has been prohibited for certain uses since 2008, with a maximum limit of 1 µg/m² set for PFOS in textiles.[3] However, there are no limits are set for any other PFCs despite concerns about their hazardous nature and the fact that they can commonly be found at far higher concentrations in textiles.

The one exception is in Norway where the sale of textiles containing PFOA above 1 µg/m² will be prohibited from June 2014; certain long chain PFCs have also recently been added to a list of priority chemicals, meaning that releases to the environment must be eliminated or substantially reduced by 2020.[4] In addition, PFOA and four other long chain PFCAs are also classified as substances of very high concern (SVHCs) within the EU under the REACH regulations (ECHA 2013).[5]

1 Weinberg, I., Dreyer, A., Ebinghaus, R. (2011) Waste water treatment plants as sources of polyfluorinated compounds, polybrominated diphenyl ethers and musk fragrances to ambient air, Environmental Pollution 59(1): 125-32 OECD-UNEP (2013) Synthesis paper on per- and polyfluorinated chemicals (PFCs). OECD/UNEP Global PFC Group, Organisation for Economic Cooperation and Development (OECD) & United Nations Environment Program (UNEP). http://www.oecd.org/env/ehs/risk-management/synthesis-paper-on-per-and-polyfluorinated-chemicals.htm

2 although a wide range of uses are currently exempted. UNEP (2009) Adoption of amendments to Annexes A, B and C of the Stockholm Convention on Persistent Organic Pollutants under the United Nations Environment Programme (UNEP). http://chm.pops.int/Portals/0/download.aspx?d=UNEP-POPS-COP-NOTIF-DN-CN524-2009.English.pdf

3 EU (2006) 2006/122/EC of the European Parliament and of the Council of 12 December 2006 amending for the 30th time Council Directive 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the member states relating to restrictions on the marketing and use of certain dangerous substances and preparations (perfluorooctane sulfonates). Official Journal L 372/32, 27.12.2006

4 NEA (2013) Flere stoffer på verstinglista (additional substances added to the priority list), Norwegian Environment agency (NEA); http://www.miljodirektoratet.no/no/Nyheter/Nyheter/2013/November-2013/Flere-stoffer-pa-verstinglista/ (Norwegian)

5 ECHA (2013) Candidate List of Substances of Very High Concern for authorization. European Chemicals Agency. http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp

Key findings of material testing: Residues of perfluorinated and polyfluorinated chemicals

Tests on the jackets and gloves for residues of hazardous chemicals were carried out in the same way as in the 2012 study[1]. The laboratory results showed, once again, that all the outdoor clothing samples contain perfluorinated and/or polyfluorinated chemicals (PFCs). This time, the frontrunners were gloves manufactured by Mammut, which contained the restricted substance PFOS at nine times its legal limit, and a jacket from Schöffel which had high levels of both ionic and volatile PFCs.

Ionic perfluorinated chemicals

- The gloves from Mammut were contaminated with 9.5 µg/m² of PFOS (perfluorinated sulfonate), far in excess of the legal EU limit of 1 µg/m².
- Of the 17 products, 15 (88 percent) contained perfluorooctanoic acid (PFOA); concentrations were above 1 µg/m² in one third of the samples.
- Jackets from Jack Wolfskin (6.3 µg/m²) and Schöffel (6.2 µg/m²) were particularly contaminated with PFOA, and noticeable values (higher than 1 µg/m²) were found in jackets from Kaikkialla and Seven Summits and in the gloves from Mammut. PFOA has similar properties to PFOS; the concentration of PFOA by area in the Schöffel and Jack Wolfskin jackets was considerably higher than the regulatory limit for the related compound PFOS as well as a planned restriction in Norway on PFOA of 1 µg/m² from June 2014.[2]
- Shorter chain perfluorohexanoic acid (PFHxA), another compound with similar properties to PFOS, was detected in 14 out of 17 samples – at concentrations of between 0.1 and 11.4 µg/m².

Volatile polyfluorinated chemicals

Of the 17 products tested, 16 (94 percent) were markedly contaminated with fluorotelomer alcohols (FTOH), at much higher levels than the ionic PFCs. Values for total volatile PFCs ranged between 48.9 and 2090 µ/m².

The GORE-TEX jacket from Salewa, the GORE-TEX gloves from The North Face, and the down jacket from Schöffel were particularly contaminated, containing 1200 µg/m², 1900 µg/m² and 2090 µg/m² of FTOH respectively.

A greater percentage of products were found to contain FTOH (94%), compared to the Greenpeace Germany analysis conducted in 2012 (57%) and average concentrations were slightly higher.

In particular, there was a marked increase in the compound 6:2 FTOH. The industry considers this chemical to be a substitute for the chemical compound 8:2 FTOH, which is more controversial because it can be converted to hazardous PFOA, Because the shorter chain alternative is less effective as a water repellent however, it may be that larger amounts are being applied to products.

The outcome of test chamber measurements: Evaporation of volatile PFCs from outdoor jackets into surrounding air

This study analysed the quantity of volatile PFCs evaporating from items of clothing at room temperature into the surrounding air within a test chamber. Nine of the products tested were looked at more closely: the jackets from Columbia, Vaude, Salewa, Adidas, Schöffel, Mammut, The North Face (Women's Impervious jacket), Patagonia and Jack Wolfskin (Topaz Jacket).

The results showed that all nine tested products were releasing fluorotelomer alcohols (FTOH) to the surrounding air at room temperature; up to 9,220 nanograms per day (ng/d) total FTOHs was found to be evaporating from the jackets. In particular, the shorter chain compound 6:2 FTOH was emitted in high concentrations in the test chamber.

Jackets from The North Face, Patagonia, Adidas and Salewa, emitted the highest levels of total FTOHs (see figure 1 and table 2).

The Jack Wolfskin jacket purchased in China released particularly high concentrations of the longer chain compound 8:2 FTOH and fluorotelomer acrylates (FTAs) to surrounding air. To a certain extent, these substances can be converted in the body into hazardous PFOA.

The test chamber investigations show that FTOH and FTA are evaporated and therefore demonstrates an additional route for these substances to be released into the environment.

It is not possible to estimate the contribution that outdoor clothing makes to the levels of PFC contamination in indoor air, based on these tests, as a number of other possible sources, such as carpets and shoes, would need to be taken into account. However, scientific studies have already shown that the indoor air in stores selling weather clothing is particularly contaminated with FTOH.

1 Greenpeace e.V. (2012), op.cit.

2 PFOA and PFDoA have recently been added to a list of priority chemicals in Norway, meaning that releases to the environment must be eliminated or substantially reduced by 2020. NEA (2013) Flere stoffer på verstinglista (additional substances added to the priority list); http://www.miljodirektoratet.no/no/Nyheter/Nyheter/2013/November-2013/Flere-stoffer-pa-verstinglista/ (Norwegian)

Figure 1 Emissions of polyfluorinated chemicals from Outdoor-Jackets [in ng/d]

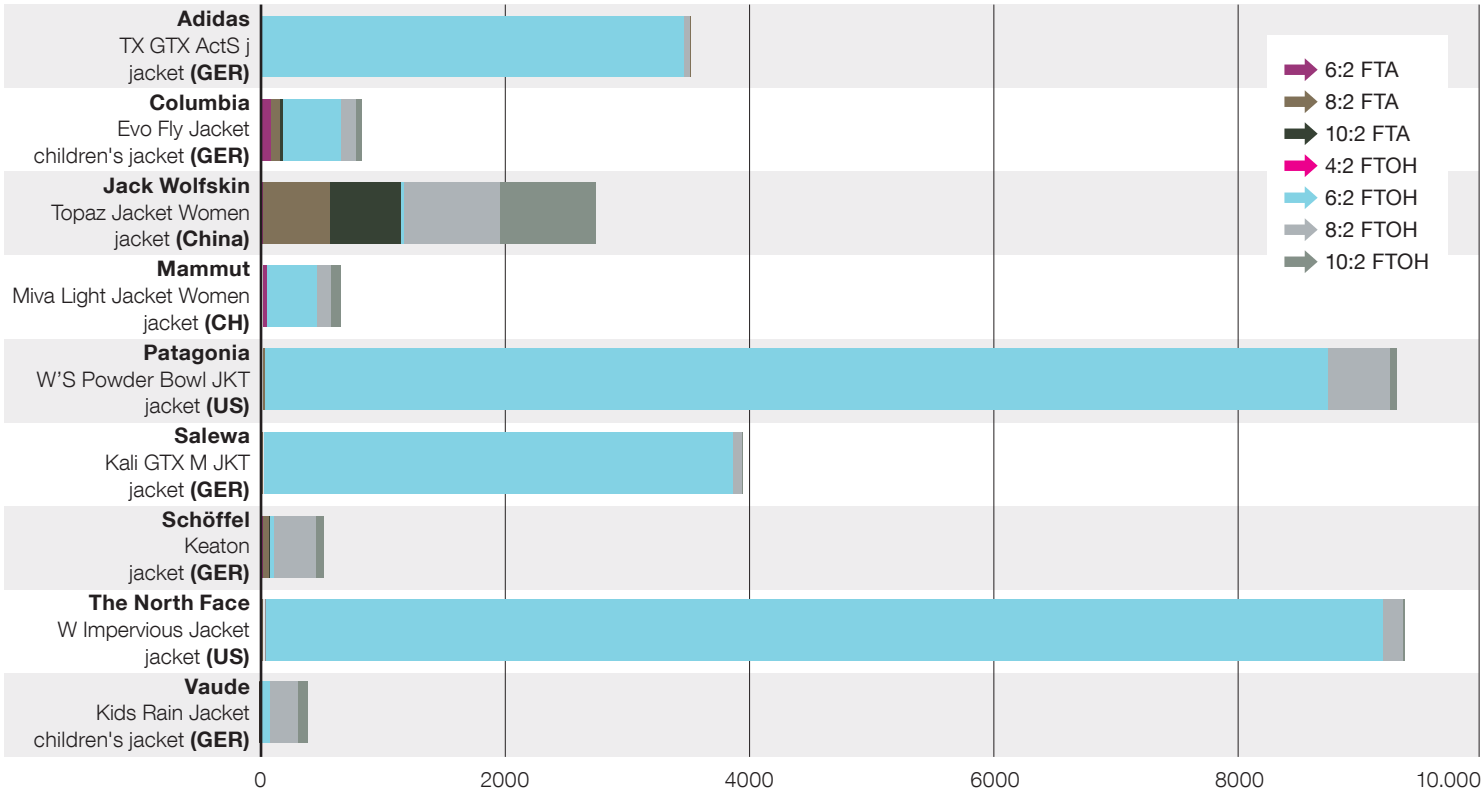

Table 2 Emissions of polyfluorinated chemicals from Outdoor-Jackets [in ng/d]

	6:2 FTA	8:2 FTA	10:2 FTA	4:2 FTOH	6:2 FTOH	8:2 FTOH	10:2 FTOH
Rates of Emmissions in ng/d							
Adidas TX GTX ActS j **(GER)**	1.5	5.6	1.4	< 2.0	**3510**	47	11
Columbia Evo Fly Jacket children's jacket **(GER)**	69	74	25	< 2.0	**490**	125	55
Jack Wolfskin Topaz **(China)**	7.4	**556**	**597**	< 2.0	17	**803**	**803**
Mammut Miva Light Jacket Women **(CH)**	31	4.3	2.3	< 2.0	**431**	121	86
Patagonia W'S Powder Bowl JK **(US)**	1.2	12	< 0.6	< 2.0	**8800**	512	53
Salewa Kali GTX M JKT **(GER)**	1	3.9	0.8	< 2.0	**3920**	68	11
Schöffel Keaton **(GER)**	2.5	47	10	< 2.0	35	372	68
The North Face W Impervious Jacket **(US)**	3.5	15	1.2	< 2.0	**9220**	162	23
Vaude Kids Rain Jacket children's jacket **(GER)**	< LOQ	2	1	<2.0	78	227	85

Because there are other sources for the exposure of humans to PFCs, such as the consumption of food or tap-water, it is not possible to estimate the exposure and potential risk to health from rooms containing outdoor-clothing or other sources of volatile PFC. Given the intrinsic properties of PFCs, further research on this issue is urgently needed.

A new trend: the use of shorter chain PFCs

This study has found that outdoor clothing still contains PFCs that exhibit environmentally harmful characteristics and which can also pose health risks. Despite the existence of more environmentally friendly alternatives, outdoor clothing brands are still relying predominantly on PFCs to make their products waterproof and dirt repellent.

Compared to the previous report[1], more short chain PFC compounds were detected, in particular 6:2 FTOH and PFHxA (perfluorohexanoic acid). Outdoor clothing brands are apparently using 6:2 FTOH as an alternative for the longer chain compound 8:2 FTOH.

However, Greenpeace does not consider short chain PFCs as an appropriate substitute. The test chamber analyses show that these shorter chain compounds are more likely to evaporate from clothing. Since they are less effective as water repellents, they are apparently being used in greater quantities. Once they have been emitted, these volatile compounds can disperse rapidly into the air. In the environment they can be transformed into shorter chain ionic PFCs (perfluorocarbonic acids). These compounds do not degrade in the environment and can easily seep into groundwater and drinking water. They cannot be filtered out, even with the most advanced technology. The increased production and use of these highly mobile chemicals, a trend which is apparent in the findings of this report, will considerably accelerate the pollution of the environment with PFCs in the future.

Both the industry and political decision-makers urgently need to rethink this misguided approach to the substitution of well-known and controversial hazardous chemicals such as the ionic PFCs (eg. PFOS, PFOA) and longer chained volatile PFCs (eg. 8:2 FTOH) with larger quantities of the lesser known volatile PFCs (eg. shorter chained 6:2 FTOH). This is all the more important because alternatives that completely avoid the use of any PFCs are already available for many applications in outdoor clothing.

Key findings: other hazardous chemicals

All outdoor jackets and gloves were also tested for alkylphenol ethoxylates (APEs), used as tensides or surfactants in wet processes in textile production, and for phthalates, a group of substances which are used as plasticizers.

Nonylphenol ethoxylates (NPEs), the best known of the APEs, were found in 13 of the 17 samples tested above the detection limit, with levels ranging from 4–200 mg/kg, equivalent to 81% of the samples. In the previous study on outdoor clothing[2] NPEs were present in 5 out of 14 samples, or 36 %, although the levels found in the current study were slightly lower. NPEs are used in the textile industry primarily for washing during the dyeing process. In the environment, NPEs degrade to nonylphenol (NP), which is persistent, bioaccumulative and toxic (PBT).

The highest concentrations of NPEs were found in a child's rain jacket from Columbia (200 mg/kg) and in the gloves from Mammut (180 mg/kg) and The North Face (170 mg/kg).

As well as being discharged from textile manufacture facilities, NPEs can also be released through the laundering of textile products, either directly into surface waters or via wastewater treatment facilities, they can break down to form nonylphenol (NP).[3]

1 Greenpeace e.V. (2012), op.cit.

2 Greenpeace e.V. (2012), op.cit.

3 OSPAR (2004) Nonylphenol/nonylphenolethoxylates, OSPAR Priority Substances Series 2001, updated 2004, OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic, OSPAR Commission, London, ISBN 0-946956-79-0: 20 pp

Phthalates were detected in all samples. Again, the highest levels were found in the gloves from The North Face, totaling 230 mg/kg, of which 150 mg/kg was DEHP. DEHP is harmful to human reproductive organs and may affect a child's development in the womb.[1]

In the other 15 samples tested, the phthalate content was below 100 mg/kg, and in 10 samples it was below 10 mg/kg. The levels of phthalates detected in all the samples do not suggest their deliberate use as a plasticiser, but are most likely to be contamination as a result of their widespread use as ingredients in manufacturing, or from contact with materials containing phthalates after manufacture (eg. packaging). It is therefore necessary to systematically eliminate the use of all phthalates throughout the manufacturing and distribution chains, to progressively reduce the levels of these hazardous chemicals in products and the environment.

Actions must follow words

Since 2011, Greenpeace's Detox campaign has been working to ensure that hazardous chemicals are removed from the textiles production process. The outcome of this product testing investigation underlines the need for the outdoor clothing industry to urgently take action to eliminate its use of hazardous chemicals, in particular the entire group of PFC compounds. While the PFC contamination of air in stores and the exposure of staff and customers to these substances is clearly a cause for concern, the threat to human health and the environment in the countries where these products are manufactured is far more serious. Analyses of drinking water in Shanghai and food tests on the Pearl River show that these substances are already present in the food chain.

Outdoor brands use images of pristine nature in their advertising and promote their "sustainable" products. At the same time, these companies are responsible for distributing hazardous chemicals such as PFCs to the furthest corners of the planet. As global players, Adidas, The North Face, Jack Wolfskin and other companies have an opportunity to improve manufacturing practices in their supply chains. Brands must make a genuine commitment to stop using hazardous chemicals – with ambitious schedules and concrete measures that match the urgency of the situation. In particular, outdoor clothing brands must set short-term deadlines for completely phasing out the use of perfluorinated and polyfluorinated chemicals in production processes. As prominent users of PFCs, these brands need to take the lead on the elimination of all PFCs; this will send an important signal to the chemical industry to increase its efforts on the further development of non-hazardous alternatives. Phasing out PFCs by 2020, as some outdoor clothing brands aspire to do, is not ambitious enough. PFC-free materials are already available today that are suitable for most applications[2].

Transparency

On the road to clean production, outdoor clothing brands must commit to greater transparency. For every product in which hazardous chemicals are found there is a factory releasing unknown quantities of these substances into the surrounding environment. Where are these factories? Which hazardous chemicals are being used by suppliers and emitted at their sites? What volume of chemicals does this involve? Greenpeace is calling on all businesses in the industry to publish precise information on the hazardous chemicals released in wastewater from all production facilities, factory by factory, and chemical by chemical. This kind of disclosure is not an unrealistic expectation, as some in the industry would claim; several fashion brands – e.g. Mango, G-Star, Inditex, Puma, Levi's and Fast Retailing/Uniqlo have already ensured the publication of data from their suppliers on the discharge of hazardous chemicals into waterways, on a global online platform[3]. There is no excuse for outdoor brands not to ensure that their suppliers disclose this kind of data. As long as the textile industry continues to use water courses as private wastewater channels, the local population has the right to find out which chemicals are being released.

Political decision-makers must take action

The hazardous properties of well-researched PFCs such as PFOS and PFOA and the insufficient data on the other PFCs that are rapidly being used as substitutes, exposes the need for much more stringent regulation to protect our health and the environment. In view of the hazardous properties of many PFCs, including the potential for short chain substitutes to transform into persistent PFCs, it is no longer enough to only regulate individual substances like PFOA and PFOS. Greenpeace calls on policy makers to fully implement the Precautionary Principle[4] by restricting the entire group of PFCs.

It's time to act.
It's time to Detox!
www.greenpeace.de/detox

1 OSPAR (2004) Nonylphenol/nonylphenolethoxylates, OSPAR Priority Substances Series 2001, updated 2004, OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic, OSPAR Commission, London, ISBN 0-946956-79-0: 20 pp

2 For more information on outdoor clothing without hazardous chemicals, go to: http://www.greenpeace.de/themen/chemie/nachrichten/artikel/outdoor_kleidung_ohne_schaedliche_chemie/

3 IPE – Chinese Institute for Environmental Affairs, which is the only credible global chemical discharge disclosure platform

4 Precautionary Principle: This means taking preventive action before waiting for conclusive scientific proof regarding cause and effect between the substance (or activity) and the damage. It is based on the assumption that some hazardous substances cannot be rendered harmless by the receiving environment (i.e. there are no 'environmentally acceptable'/ 'safe' use or discharge levels) and that prevention of potentially serious or irreversible damage is required, even in the absence of full scientific certainty. The process of applying the Precautionary Principle must involve an examination of the full range of alternatives, including, where necessary, substitution through the development of sustainable alternatives where they do not already exist.


TIME TO
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