



Gore Fabrics' Goals on PFCs of Environmental Concern

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Bringing Dreams to Reality for 55 Years



Where It All Began

Bill and Vieve Gore

W. L. Gore & Associates

- Founded in 1958
- 10,000+ associates
- More than \$3 billion in sales
- Privately held





A global Enterprise

with a diverse range of products

W. L. Gore & Associates
November 2014



Taking a Long-Term View . . .

- Invest for long-term business health
- Balance the financial perspective with other success factors
- Allow time for innovation
- Weigh the welfare of both current and future generations



Milestones of Gore Fabrics' Sustainability Program

Examples

- **1986:** Gore pioneered **solvent-free adhesives** for manufacturing garment laminates
- **1992:** Gore Fabrics adopts **Life Cycle Assessment**
- **1993:** The GORE BALANCE PROJECT™ program is adopted, making Gore the first manufacturer of performance fabrics to introduce a **high level recycling system for high-performance garments**
- **1996:** Gore begins working with the **OEKO-TEX® 100 Standard** for textile product safety
- **2007:** From the beginning, Gore actively participates in the efforts of the outdoor industry on the path to systematically improve the environmental impacts of its products (**OIA Eco-Index**)
- **2011:** GORE-TEX® apparel made with 2-layer laminates that are “**bluesign® approved fabrics**” are available at retail after Sept 2012;

Gore **switches its DWR treatment** for its consumer fabric to more environmentally friendly alternatives

- **2013:** Gore completed **elimination of PFOA** from raw material of its functional fabrics
- **2015:** Gore publishes **DWR LCA results:** DWR performance during use phase can significantly impact its environmental profile;



Our ongoing Commitment as responsible manufacturer

We are confident that our products are **NOT a significant source of PFCs of Environmental Concern** in the environment (including water sources):

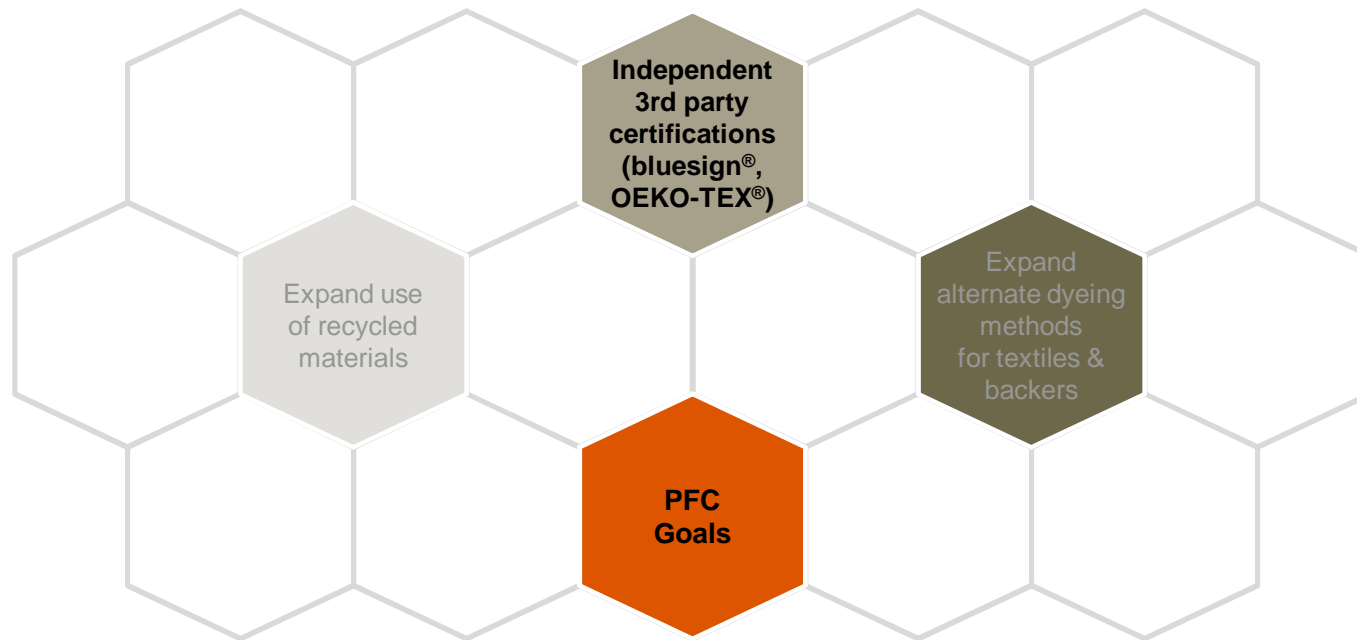
- Voluntarily applying the best available environmental control technologies in all manufacturing plants globally to destroy PFCs of Environmental Concern that could potentially enter the environment from our DWR treatment processes.
 - Elkton, MD, US
 - Shenzhen, China
 - Okayama, Japan
 - Munich, Germany
 - Livingston, Scotland
- Applying independent credible third-party environmental and safety standards such as bluesign® and OEKO-TEX®.
- Purchasing raw materials globally only from companies that subscribe to the requirements of the EPA Stewardship Program (no PFOA).

Still, we are committed to continually improve the environmental profile



Gore Fabrics ambitious Environmental Goals

- bluesign® approval for 85% of consumer garments laminate volume by 2020
- OEKO-TEX® certification for 100% of consumer garments products
- A plan to eliminate PFCs of Environmental Concern from consumer laminate shipments





Dimensions of Assessing Material Alternatives

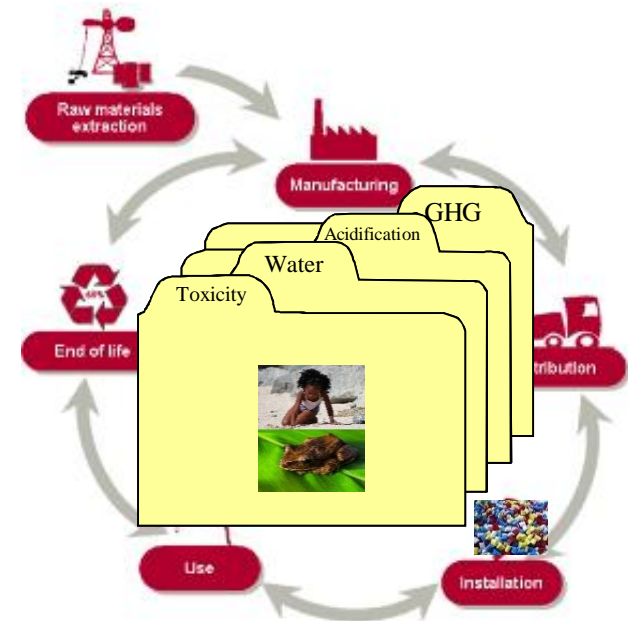
The hazards/risk
of the **material
itself**



The hazards/risks of the
material **over its life
cycle**



**All environmental
impacts** of the material
over its life cycle





DWR Assessment in High Performing Jackets (2015)

Find the summary report here <https://www.gore-tex.com/en-us/experience/responsibility/environmental/lifecycle-assessment>

- Non-fluorinated as well as short chain fluorinated DWR come with environmental impacts
- As long as the performance of non-fluorinated DWR treatments in field tests is not meeting end-user's needs, substituting a short-chain fluorinated treatment (for a non f) will have adverse environmental and health effects.
- Consumer care is the single biggest driver for the toxicity potential impact indicators when using a non-fluorinated DWR treatment
 - Otherwise unnecessary high number of washing, drying and re-impregnation comes with environmental impacts related to energy consumption (e.g. particle and heavy metal emissions from coal)
- We recognize a high wash frequency scenario might not be realistic for many consumers, but accepting loss of DWR will likely result in disappointment and premature replacement of a jacket. This comes with similarly negative environmental impacts.



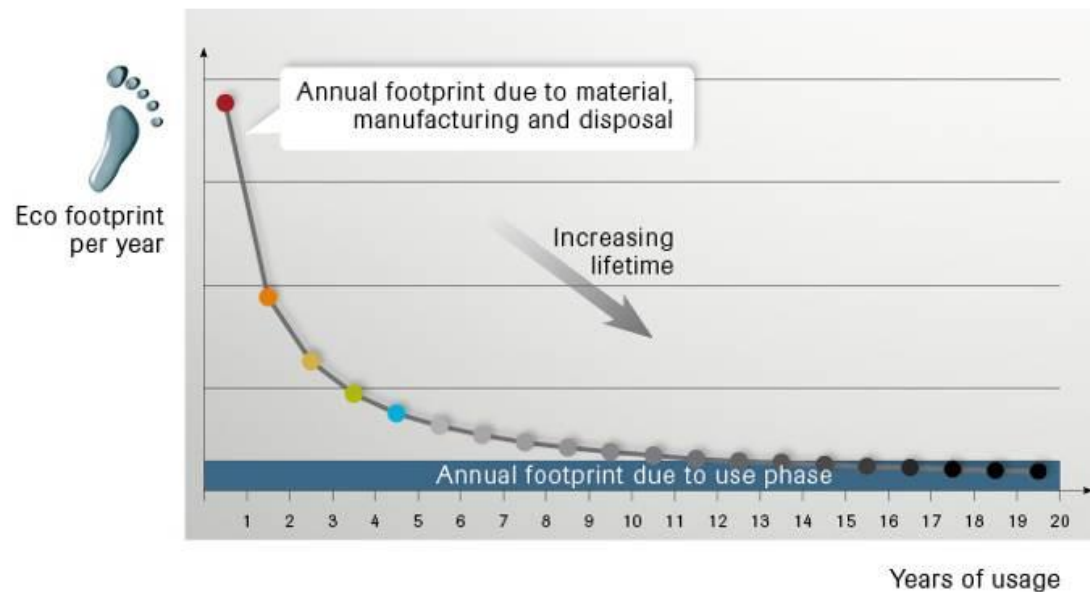
Choosing between alternative DWR technologies needs to be based on field trials and holistic environmental and risk assessment.



Durable performance Enables Low Footprint

Find the summary report here <https://www.gore-tex.com/en-us/experience/responsibility/environmental/lifecycle-assessment>

The jacket's longevity is the single most influential parameter for improving several environmental impacts - the longer a jacket lasts, the smaller its annual environmental impact will be.





OUR INTENT

Gore has set an ambitious goal to eliminate PFCs of Environmental Concern from its consumer laminate shipments

- taking a life cycle view



Our position on PTFE and PFCs of Environmental Concern

- **Based on science and following negotiations with Greenpeace, we describe three types of PFCs. On a high level:**
 1. “Hazardous PFCs” (see REACH SVHC criteria), for example long chain PFCs like PFOA/C8
 2. “PFCs of Environmental Concern”, for example short chain PFCs like C6
 3. PFCs that are neither hazardous nor of environmental concern, for example fluoropolymers
- We have **completed the removal of Hazardous PFC** from the supply chain of our entire Fabrics portfolio in 2013
- **There is a clear and important distinction between PTFE and PFCs of Environmental Concern.**
 - **PTFE** is non-toxic, safe for the end-user and insoluble. It is stable and **does not degrade in the environment to become a source of PFCs of Environmental Concern.**
 - PTFE contributes positively to the ecological balance of performance wear, as it helps to enhance the durability of a product
- **Gore’s membrane material PTFE - is NEITHER a PFC of Environmental Concern NOR a hazardous PFC**
 - **AND once made without the use of PFCs of Environmental Concern, will meet Greenpeace’s hazardous PFC elimination campaign**



Technical Definition as agreed with Greenpeace

PFCs of environmental concern

Trait	Definition	Reference
1. highly fluorinated	Per-fluorinated or poly-fluorinated organic substances	Buck 2011, Perfluoroalkyl and Polyfluoroalkyl Substances in the Environment: Terminology, Classification, and Origins
2. small enough to be bioavailable	Capable of crossing a cell membrane, molecular weight less than 3,000 Daltons	De Mello WC., Ed., Cell-to-Cell Communication, Plenum Press, NY, 1987, p34; Beyer EC, Gap Junctions. Inter. Rev. Cytol. 137, 1993 p2; Molecular Biology of the Cell, 3rd Ed., Alberts B, Bray D, Lewis J et al., Garland Science, NY, 1994, pp 958, 963. Data Analysis of the Identification of Correlations between Polymer Characteristics and Potential for Health or Ecotoxicological Concern, OECD, Paris, 2009, pp. 9, 37.
3. persistent	Half-life > 2 months (> 60 days) in water or soil*	Derived from REACH persistence criteria for PBT and vPvB substances

^[1] For the avoidance of doubt, this includes compounds with other elements (e.g. oxygen, sulfur, iodine) but it does not include compounds that fall within other recognized classes already subject to regulation (e.g. CFCs, HCFCs, HFCs).

^[2] The molecular weight is not intended to be an average molecular weight, but rather a cut off for the minimum molecular weight. The molecular weight of 3,000 Daltons was chosen to provide a margin of safety over the 1,000 and 2,000 values referenced in the OECD paper. Should available data show that a compound with a molecular weight of greater than 3,000 Daltons is bioavailable, then the compound will be deemed to meet the criteria of small enough to be bioavailable.



Gore has set an ambitious goal to eliminate PFCs of Environmental Concern from its consumer laminate shipments

Find a summary of goals and roadmap here https://drive.google.com/file/d/0BxvQ_I44P_9eUUI4VzA4X3hVcWs/view

- We strive to deliver a truly unique combination of high technical performance and sustainability.

Our Goals to Eliminate PFCs of Environmental Concern:

- ✓ By 2020, Gore Fabrics will eliminate PFCs of Environmental Concern from its consumer laminate shipments corresponding to approximately 85% of product units in the market. This includes jackets, shoes, gloves and accessories.
- ✓ Between 2021 and 2023 Gore Fabrics will remove PFCs of Environmental Concern from the remaining consumer fabrics laminate shipments while continuing to deliver products which meet the performance specifications relevant for the end use.



Gore has set an ambitious goal to eliminate PFCs of Environmental Concern from its consumer laminate shipments

- Gore Fabrics will undertake a **substantial innovation program collaborating with supply partners** to eliminate PFCs of Environmental Concern that are present as processing aides Gore Fabrics' suppliers use to manufacture PTFE (life cycle approach).
- Our goals and product roadmap reflect our **holistic view** on how to pro-actively address the issue on **all performance levels**.
- We are assessing **membrane and DWR technology pathways** both fluorinated and non fluorinated whilst meeting or exceeding the performance needs of targeted end-uses.
- We maintain our **commitment to fluorinated materials** as source of product differentiation and innovation in future.
- Where end-users depend on durable performance in harsh or life threatening situations, Gore will **not compromise on the technical performance** and the transition to alternative materials out may take longer.



Greenpeace's assessment of Gore Fabrics' plans

Greenpeace Q&A about Gore can be found here <http://detox-outdoor.org/en/faq#gore-commitment>

Chiara Campione

Detox Outdoor Corporate Lead, Greenpeace:



Greenpeace welcomes this move as a real game changer in the outdoor industry. Given Gore Fabrics' influential role in the value chain, the innovation that Gore is driving will significantly broaden the range of materials free of hazardous PFCs for outdoor products, including those using PTFE membranes with less environmental burden.



- Greenpeace recognizes that making long lasting materials without the discharge of hazardous chemicals will contribute to a lower environmental footprint.
- Finished garment brands can work with Gore Fabrics' product roadmap and timeline to meet the Greenpeace hazardous PFC requirement
- Greenpeace acknowledges that our current products are safe to wear (no health risk associated with Gore consumer laminates).
- Greenpeace will continue to pursue their goals to move brands to clean up their supply chain and production, disclose and eliminate all other remaining hazardous chemicals.



Outputs

- Overcome a long-standing ambiguity of how to differentiate PFCs that are safe from those that raise concerns
- Clear the way – and provide timelines - for Gore and its customers to deliver more sustainable technology innovations - including fluorinated materials
- Path to deliver outdoor products with the optimal combination of high technical and sustainability performance
- Positive learning experience of engaging with a critical NGO based on ambition and science



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Find more information on our website:

<https://www.gore-tex.com/en-us/experience/responsibility>