

REPORT

# GOING OUT OF FASHION:

## U.S. APPAREL MANUFACTURERS MUST ELIMINATE PFAS “FOREVER CHEMICALS” FROM THEIR SUPPLY CHAINS



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APRIL 2022  
R: 22-04-B

## ACKNOWLEDGMENTS

This report is produced by NRDC, Fashion FWD, and the U.S. PIRG Education Fund. Sujatha Bergen and Yiliqi of NRDC are coauthors, with significant contributions from Anna Reade of NRDC and Alexandra Quinn of Fashion FWD.

The authors would like to thank Mike Schade of Toxic-Free Future and Siva Pariti of BluWin for their valuable review of this report.

The opinions expressed in this report do not necessarily reflect those of our organizations' supporters or reviewers.

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## *Executive Summary*

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PFAS (per- and polyfluoroalkyl substances) are a family of as many as 12,000 dangerous synthetic chemicals that pollute the drinking water of approximately 200 million Americans, accumulate in wildlife, and have been found in places as remote as Mount Everest and the Arctic.<sup>1</sup> Linked to health impacts for both humans and animals that range from cancer to suppressed immune function, the chemicals are extremely persistent (that is, resistant to breaking down) and can build up in our bodies and in the environment.<sup>2</sup>

Despite their threat to people and our planet, PFAS continue to be used widely in the apparel industry. The chemicals largely appear as coatings or in membranes to make products waterproof, stain resistant, and breathable. This leads to PFAS pollution throughout the product's life cycle, from the manufacture of the chemicals and products to their use by consumers to their disposal.

PFAS use in apparel and other consumer products is coming under increased scrutiny from lawmakers. However, apparel manufacturers and retail stores don't need to wait for the law to catch up to the proliferation of toxic PFAS. They can get out in front of the regulatory curve and protect their customers and the planet from PFAS pollution by immediately adopting policies to end the use of PFAS in clothing, footwear, and accessories. Indeed, some already have.



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NRDC, Fashion FWD and U.S. PIRG Education Fund surveyed the PFAS-related policies and commitments of 30 top U.S.-based apparel brands and retailers, including companies in the footwear, indoor apparel, and outdoor apparel sectors and several of the nation's leading apparel retailers. We graded them on the basis of their timelines for PFAS phaseout, the range of products covered by their PFAS policy, and public availability of company PFAS commitments, as well as their PFAS labeling and testing protocols. Our survey found:

### **1. Levi Strauss & Co., Victoria's Secret, and Decker Brands Lead the Way With Strong PFAS Elimination Policies**

The growing list of companies committed to a phaseout of PFAS comprises some of the best-known apparel brands in the United States. Several companies have already eliminated PFAS use in their supply chain. Levi Strauss & Co. leads the industry, followed closely by Victoria's Secret and Deckers Brands (including UGG, Teva, and others). Keen Footwear also earns high marks for removing the toxic chemicals from its shoes.

Other companies have clear, time-bound commitments to phase out all PFAS from their apparel, including American Eagle, Ralph Lauren, Gap Inc., Patagonia and PVH (the parent company for brands like Tommy Hilfiger, Calvin Klein, and Speedo). Their commitments should serve as a call to the rest of the apparel industry to immediately adopt their own policies to stop using PFAS in their products.

### **2. The Majority of Apparel Companies Have Weak Commitments**

Of the 30 apparel brands and retailers surveyed, 18 brands and retailers received a grade of D or lower. Some of these companies did not have a publicly available commitment to eliminate any PFAS, while others had pledged to eliminate only PFOA (perfluorooctanoic acid) and PFOS (perfluorooctane sulfonate)—two PFAS chemicals already phased out of use in the United States.<sup>3</sup> Some of these brands and retailers are among the best known in the United States and include Walmart, Wolverine (the parent of Hush Puppies, Keds, Merrell, Stride Rite, and other brands), Macy's, and Skechers.

### **3. The Outdoor Industry Lags Behind Customer Values in PFAS Policy**

Patagonia received the highest grades of all the outdoor apparel brands surveyed for having established a timeline to eliminate use of all PFAS in its supply chains in the future. However, the remaining U.S. brands within the outdoor apparel sector received surprisingly low grades despite the environmental and public health concerns of many of their customers. REI, VF Corp. (parent of The North Face, Timberland, JanSport, and others) and L.L. Bean, for instance, received grades of D or F for incomplete commitments that excluded some PFAS or for long timelines for phaseout. European outdoor apparel companies Jack Wolfskin, Houdini, and Vaude, and outdoor textile supplier Polartec<sup>®</sup> have eliminated PFAS from their supply chains, demonstrating that it can be done and that U.S. brands are delaying unnecessarily.<sup>4</sup>

### **4. Inaccurate and Misleading Definitions of PFAS Lead to Consumer Confusion**

Many companies use outdated, inaccurate, or misleading definitions of PFAS in their commitments and communications regarding the chemicals. These outdated definitions can result in consumer confusion around whether the products they purchase contain PFAS. For instance, companies should cease using the label "PFCs of environmental concern-free" if their products contain any PFAS, because it falsely suggests some PFAS are not of environmental concern.<sup>5</sup>

On the basis of our findings, we compiled the following recommendations for apparel manufacturers and retailers, policymakers, and consumers:

**Apparel manufacturers and retailers** should act immediately to protect public health and the planet. They should publicly commit to a time-bound phaseout of all added PFAS in their apparel supply chains and label any products that contain PFAS until a phaseout is achieved. They should also urge industry trade associations to adopt these recommendations for their memberships.

To ensure protection across states and the country, the **federal and state governments** should ban all PFAS in consumer apparel and require labeling of products that contain PFAS until all uses are phased out. Policymakers should also ensure that these laws contain no loopholes that would allow manufacturers to substitute other toxic PFAS for those already banned, and that existing PFAS contamination is subject to strong cleanup standards that safeguard public health.

**Consumers** should use our "Consumer Guide to PFAS and Labels" to be PFAS detectives and seek alternatives wherever possible. Consumers should also act by urging their favorite brands and retailers to phase out PFAS and adopt safer alternatives and by asking state and federal policymakers to ban PFAS in apparel.

As a major user of PFAS, the apparel industry can play a key role in turning off the tap of PFAS pollution. Instead of making and selling raincoats, shoes, and other products coated in PFAS chemicals, brands and retailers in this sector should stop all use—and, when functionality like waterproofing or stain resistance is necessary, immediately turn to safer alternatives. We know this change is possible. Companies and brands in each of the categories surveyed have already made the shift. It's time for the rest of the industry to catch up.

# Introduction

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PFAS (per- and polyfluoroalkyl substances) are a class of as many as 12,000 closely related synthetic chemicals that are both widely used and long lasting.<sup>6</sup> They are found in many consumer products from kitchen goods to cosmetics to apparel, where the chemicals confer water and dirt resistance and nonstick properties to clothing, sports apparel, shoes, and accessories like purses, backpacks, and outdoor gear.<sup>7</sup>

While PFAS in apparel can offer consumers added convenience, this comes at a heavy price. PFAS are often called “forever” chemicals because they linger in the environment and build up in wildlife and the human body over time.<sup>8</sup> Unfortunately, scientists have linked even very small amounts of PFAS exposure to a host of health problems, from elevated cholesterol to cancer.<sup>9</sup> PFAS chemicals have been found in drinking water across the country and are often more concentrated in communities already overburdened by multiple sources of pollution. PFAS pollution—where PFAS enter the environment—occurs across an apparel product’s entire life cycle, from the facilities that manufacture the chemicals to the factories that apply PFAS onto apparel to the stores that sell PFAS-treated apparel to its use by consumers to its disposal in landfills or incinerators.<sup>10</sup>

The apparel industry, one of the top users of PFAS chemicals, is increasingly recognizing that adding the chemicals to confer stain resistance, water resistance, and breathability to its clothes and accessories is not necessary and compromises public health. In fact, many companies have found that there are equally effective alternatives to PFAS. While several have made commitments in recent years to phase out their use of PFAS, numerous apparel brands and retailers have yet to adopt strong commitments to eliminate these chemicals.

NRDC, Fashion FWD, and U.S. PIRG Education Fund want to arm consumers with information that will help them understand the progress that their favorite brands have made—or have failed to make—in eliminating these toxic chemicals from their supply chains, so they can make informed purchasing decisions. This report examines the PFAS policies and commitments of a cross-section of retailers that sell large volumes of clothing, including major high-end fashion, fast-fashion brands, shoes, and sports apparel, as well as major companies that manufacture and sell apparel intended for outdoor use, culminating in an easy-to-use PFAS in Apparel Scorecard for these brands and retailers. It complements other scorecards such as the Mind the Store Retailer Report Card, which looks at retailers’ progress in reducing the use of toxins, and the efforts of numerous organizations in the United States and around the world to stop the accumulation of PFAS in our bodies and environment.<sup>11</sup>

This scorecard is also an urgent call to action for the apparel industry and apparel consumers. Apparel manufacturers, retailers, regulators, and consumers have the power to take immediate action to combat this problem. With company commitments to stop the use of all PFAS, legal bans on their use, and consumer refusals to purchase PFAS-coated clothing, we can help stem the flood of PFAS pollution from apparel and take a big step forward in protecting the health of future generations.

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# The Problem With PFAS in Apparel

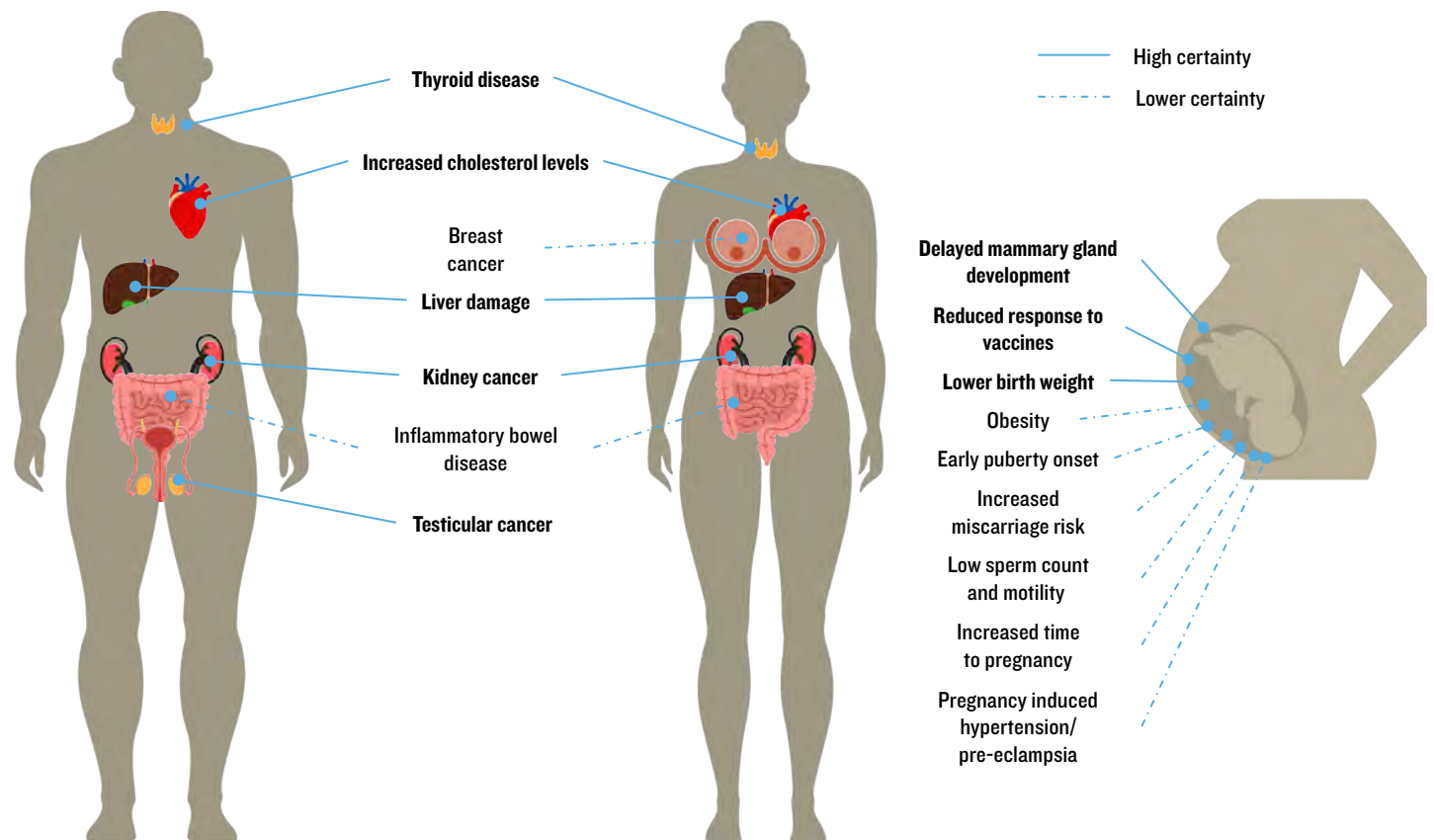
The defining feature of all PFAS chemicals is that they contain incredibly strong carbon-fluorine bonds. As a result, they are extremely resistant to breaking down in the environment. When released into water or air, they can enter our bodies and travel far and wide, even to the Arctic and Mount Everest.<sup>12</sup>

PFAS enter the body through the water we drink, air we breathe, foods we eat, and products we use every day. They can accumulate in blood, breast milk, and body organs including the lungs and kidneys and can take several years to be flushed out.<sup>13</sup> As shown in Figure 1, PFAS can impact almost every organ in the body and are linked to a host of health problems including kidney and testicular cancer, liver damage, elevated cholesterol, a weakened immune system, and developmental problems in children.<sup>14</sup> These impacts can occur even at low levels of exposure.

PFAS were introduced to our homes in the 1950s, when companies began to use two PFAS chemicals—PFOS and PFOA—in consumer products like Scotchgard aftermarket waterproofing treatments and Teflon™ nonstick cookware.<sup>15</sup> Scientists subsequently linked those two specific chemicals to a host of serious health effects, including cancer, hormone disruption, and harm to the immune system.<sup>16</sup> Workers, communities, and states impacted by pollution and exposure filed suit, and companies in the United States voluntarily stopped manufacturing PFOS and PFOA in 2002 and 2015, respectively, under an agreement with the U.S. Environmental Protection Agency.<sup>17</sup>

This phaseout was a step forward for public health. But the impact was unfortunately limited because manufacturing companies simply substituted slightly different but very similar chemicals in the PFAS family for PFOS and PFOA.<sup>18</sup>

FIGURE 1: EFFECTS OF PFAS ON HUMAN HEALTH



Source: Modified from the European Environment Agency, “Emerging Chemical Risks in Europe—PFAS,” <https://www.eea.europa.eu/publications/emerging-chemical-risks-in-europe>.

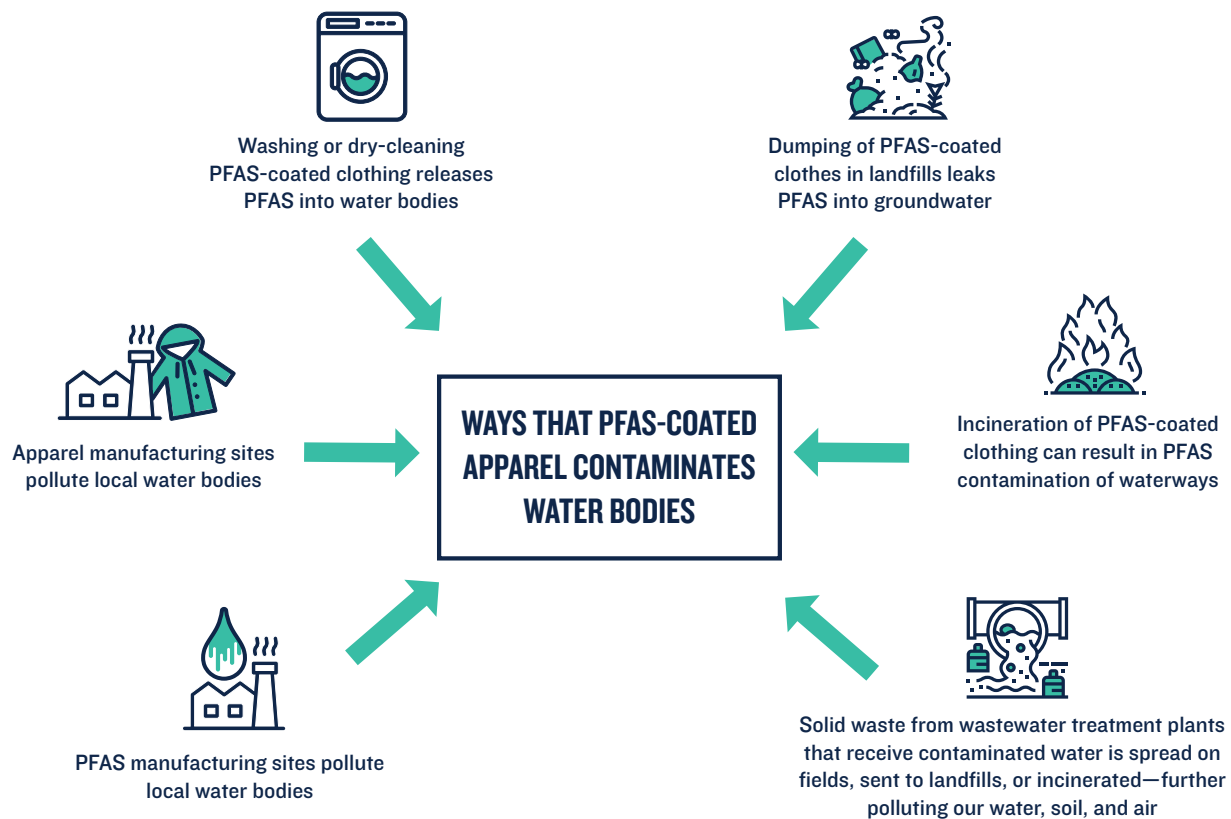
These chemicals are still PFAS, pose similar health risks, and contribute to enormous contamination problems in communities across the country.<sup>19</sup> For instance, like their PFOA and PFOS cousins, these substitutes are extremely resistant to breakdown in the environment and thus will remain in our waterways and soil for generations. Furthermore, most have been introduced to the market with little to no information on their safety.<sup>20</sup>

The apparel industry specifically has engaged in this practice, which is often referred to as “regrettable substitution,” on a sector-wide scale. While many apparel companies banned the use of PFOA and PFOS in their supply chains in compliance with voluntary phaseout agreements or public pressure, most apparel brands and retailers have not banned the use of the thousands of other chemicals in the PFAS class. As a result, PFAS are widely used in the apparel industry to help make clothing, accessories, shoes, and gear more water and stain resistant. A 2020 European Commission report estimated that 20 percent of indoor and outdoor wear and 10 percent of sports apparel and footwear products in Europe are coated in PFAS.<sup>21</sup> The U.S. apparel industry typically does not disclose PFAS usage, but a 2018 study by the Commission for Environmental Cooperation found PFAS in approximately 70 percent of 137 articles of clothing it tested for PFAS in the United States, Canada, and Mexico.<sup>22</sup> In January 2022, researchers at Toxic Free Future found PFAS in 15 of 20 outdoor apparel items advertised as water or stain resistant and purchased from U.S. stores.<sup>23</sup>

Consumers who buy apparel coated with PFAS can be directly exposed in numerous ways. Children can chew on clothes coated in PFAS and ingest the chemicals. PFAS-coated clothing can also shed PFAS, which can attach to household dust. People can inhale this dust, and children can ingest it when they put their hands in their mouths.<sup>24</sup> Studies suggest that some PFAS from clothing is also absorbed by the skin, further raising concern among scientists.<sup>25</sup>

The use of PFAS in apparel is also a major contributor to the contamination of our drinking water. Because many PFAS chemicals don’t break down and are very mobile and soluble, PFAS contamination of water is widespread in the United States and across the globe. According to a 2020 study, more than 200 million Americans could have PFAS in their drinking

**FIGURE 2: WAYS THAT PFAS-COATED APPAREL CONTAMINATES WATER SOURCES**



Source: NRDC, “Toxic Fashion: Remove ‘Forever’ PFAS Chemicals From Our Apparel,” January 2022, <https://www.nrdc.org/sites/default/files/toxic-fashion-pfas-apparel-fs.pdf>.



water at levels higher than 1 part per trillion, a level some experts have suggested as the maximum for safety.<sup>26</sup> Several studies have documented the presence of PFAS pollution in our rivers and oceans, where it can harm dolphins and other aquatic wildlife.<sup>27</sup>

PFAS used in the apparel industry enters water bodies in several ways, as illustrated in Figure 2; during manufacturing, during laundering or dry cleaning, and from landfills or incineration.<sup>28</sup> Most wastewater treatment systems used at apparel manufacturing sites were never designed to capture complex substances like PFAS. As a result, these toxic chemicals can be discharged into local waterways and soil through inadequately treated wastewater and sludge.<sup>29</sup> Even if these facilities don't directly discharge water contaminated with PFAS, they often send their polluted water to a local wastewater treatment plant that is similarly ill-equipped to filter out PFAS. Even in those few treatment plants that do filter for PFAS, the result is solid PFAS waste that cannot be disposed of safely and will very likely make its way to water sources over time.<sup>30</sup>

In addition, regulators in the United States and across the globe generally do not limit PFAS pollution levels in factory wastewater and the vast majority of PFAS in factory wastewater ends up in waterways.<sup>31</sup> It is not surprising, then, that the water in countries with high volumes of apparel manufacturing, such as China, Bangladesh, and Vietnam, is highly contaminated with PFAS.<sup>32</sup>

Furthermore, PFAS chemicals released into the air by industrial facilities do not stay local. They can attach themselves to raindrops and snowflakes that ultimately fall into our rivers, lakes, and other waterways.<sup>33</sup>

At home, washing or dry-cleaning PFAS-coated clothing can release the chemicals into our water sources. A 2015 study by the Danish Environmental Protection Agency found them in the water used to wash children's clothing coated with PFCA, a type of PFAS.<sup>34</sup> And a 2021 study by the Florida Department of Environmental Protection concluded that PFAS are leaching from fabrics during the laundry or dry-cleaning process.<sup>35</sup>

Finally, clothing coated with PFAS is typically disposed of in landfills or through incineration. Both methods can release PFAS pollution into our waterways. A 2021 study published in *Environmental Science and Technology* found that carpets and clothing are likely the source of PFAS chemicals found in the water seeping from landfills.<sup>36</sup> A 2019 study by New England Waste Services of Vermont identified textiles as the second-largest source of PFAS contamination emanating from a Vermont landfill.<sup>37</sup> Incineration of textiles can also release PFAS into the air, where it can attach to rainwater droplets and fall back into waterways.<sup>38</sup>

To sum up, PFAS are ubiquitous, persistent, and harmful to public health and the planet. Their use in apparel contributes to pollution of our drinking water, air, homes, and workplaces. To date, only two PFAS have been largely phased out of use in the United States. Thousands remain in current use and will continue to pollute until we stop adding them to products like apparel.

## SPOTLIGHT ON A LEGACY OF PFAS CONTAMINATION: PFAS POLYMERS

PFAS polymers—a type of PFAS—are often applied to numerous consumer products as a nonstick, waterproof, and stain-resistant coating and as a membrane that confers water repellency and breathability.<sup>39</sup> Often labeled as Gore-Tex®, they are used widely in apparel like raincoats, jackets, shoes, sleeping bags, and tents.

The industry claims PFAS polymers are safer than other PFAS and often describes the chemical as “not of environmental concern.”<sup>40</sup> However, the truth is that PFAS polymers, when added as a coating or membrane to a raincoat or other product, can pose a toxic risk to wearers, just as other PFAS can.<sup>41</sup> PFAS polymers are made using other PFAS, which increases the risk of contamination throughout the manufacturing process. PFAS polymers can also break down into other toxic PFAS.<sup>42</sup> When PFAS-polymer-containing apparel is disposed of in landfills or incinerated, the chemical and its breakdown products can also end up in runoff, air emissions, and eventually our waterways.<sup>43</sup>

Despite mounting evidence of contamination linked to PFAS polymers, the chemicals remain in widespread use, especially in outdoor apparel. The continued sale of apparel that contains PFAS polymers is particularly egregious given that outdoor apparel companies in Europe, like Jack Wolfskin, Houdini, and Vaude, and outdoor fabric manufacturers, such as Polartec®, have already shown that all PFAS, including PFAS polymers, can be entirely avoided.<sup>44</sup> Patagonia and L.L. Bean have also committed to timelines to phase out all PFAS use, including PFAS polymers.<sup>45</sup>

The continued use of PFAS polymers is a clear example of misleading industry claims that not all PFAS are harmful, when we know they are. This is one more reason why regulators should restrict PFAS as a class of chemicals, not individually.

# Key Survey Findings

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To get an accurate picture of how both the apparel industry at large and individual brands are using PFAS in their products, NRDC, Fashion FWD, and U.S. PIRG Education Fund sent surveys to 30 apparel makers and retailers. We combined survey results with publicly available information, such as statements on company websites or product descriptions. Each company was scored in five categories, and these scores were combined and converted into a final letter grade. Our results ultimately revealed a grim picture of PFAS in apparel, with 18 companies receiving scores of D or worse. Only a few standouts, far above the rest, have already eliminated use of all PFAS in their supply chains.

## LEVI STRAUSS & CO., VICTORIA'S SECRET, AND DECKER BRANDS LEAD THE WAY WITH STRONG PFAS ELIMINATION POLICIES

Three well-known brands have already stopped using all PFAS in their apparel supply chains. Levi Strauss & Co. has the strongest commitment against PFAS of all companies surveyed; it has already eliminated all PFAS from its supply chains and states that publicly. Victoria's Secret and Deckers Brands have also phased out all PFAS use.

Ralph Lauren, American Eagle, and Gap Inc. have committed to phasing out all PFAS and scored well. PVH, the parent company for brands like Tommy Hilfiger, Calvin Klein, and Speedo, announced new commitments in 2022 to phase out all PFAS by 2024 and earned special mentions.

Patagonia also updated its website with a commitment to phase out all PFAS by 2024, the only outdoor apparel company with a time-bound policy to phase out all PFAS. Keen Footwear, which has eliminated PFAS from all footwear (its primary product), earned the highest score in the footwear category and has challenged the rest of the outdoor footwear industry to eliminate PFAS from their supply chains.

The list of companies that have already phased out or have committed to phasing out all PFAS is composed of some of the best-known apparel brands in the United States. Their commitments should serve as a call for the rest of the industry to follow suit.

## THE MAJORITY OF APPAREL COMPANIES HAVE WEAK PFAS COMMITMENTS

Eighteen of the companies surveyed received a grade of D or lower on our scorecard. Some apparel brands and retailers surveyed have not yet adopted a public policy to limit or eliminate PFAS use in their supply chains or have only adopted a policy to ban PFOA and PFOS (two PFAS chemicals already phased out of U.S. use, as discussed above). Among these laggards are some of the top retailers in the country, including Walmart, Macy's, and Nordstrom. The shoe industry has also been slow to act. Except for Keen Footwear, no shoe company surveyed has banned all PFAS from its supply chain.

## THE OUTDOOR APPAREL INDUSTRY LAGS BEHIND CUSTOMER VALUES IN PFAS POLICY

While many U.S. outdoor apparel companies talk about the importance of pristine natural places, the industry continues to contribute to PFAS pollution of these very places, with the majority of brands surveyed receiving a D or below. In fact, only two companies have a time-bound commitment to phase out all PFAS from their products in the future: Patagonia by 2024 and L.L. Bean by 2026. No other U.S. outdoor apparel brand surveyed has gone as far. VF (parent company of North Face and Timberland), for instance, has committed to phase out all PFAS chemicals *except* PTFE, by 2025. Similarly, REI has banned only a few PFAS chemicals from its supply chain but excluded many. The policy lag of most of the U.S. outdoor apparel industry is particularly notable given the environmental and public health concerns of much of its consumer base.

## INACCURATE AND MISLEADING DEFINITIONS OF PFAS LEAD TO CONSUMER CONFUSION

Many companies use outdated definitions and misleading terminology in their commitments and communications regarding PFAS chemicals—ignoring the latest scientific consensus that PFAS chemicals are defined by the existence of at least one fully fluorinated carbon atom, and disregarding the further scientific consensus that all PFAS are of environmental concern.<sup>46</sup> Outdated definitions can confuse consumers about whether the products they purchase contain PFAS.

A notable example of this confusing practice can be found in New Balance’s Restricted Substances Manual, published on its website, which states that “no intentional use of perfluorinated chemical (PFC) treatments of environmental concern are allowed in the process of manufacturing NB products.”<sup>47</sup> Use of the phrase “of environmental concern” falsely suggests that some PFAS are *not* a threat to the environment. New Balance’s use of this terminology in its PFAS policy could give consumers the impression that New Balance products do not contain potentially polluting PFAS chemicals, when some in fact do.

In an example of a misleading description of progress on PFAS, Nike’s website states that the company is “working toward a complete phaseout of PFC-based *finishes* by the end of 2021” (emphasis added). The website, however, does not mention a phaseout of PFAS-based *membranes*.<sup>48</sup> Since Nike advertises products that contain Gore-Tex membranes, materials known to be manufactured with PFAS, this language could mean that the company has not committed to phasing out all PFAS use.<sup>49</sup>

In contrast, Jack Wolfskin, a European outdoor apparel brand, labels its water-repellent products that do not contain PFAS as “PFC-free.”<sup>50</sup> This clearly and accurately tells the consumer that the product does not contain these toxic chemicals.

## ALTERNATIVES TO PFAS SHOULD BE SCREENED FOR HAZARDS

NRDC, Fashion FWD, and U.S. PIRG Education Fund asked companies about their adoption of screening measures to ensure that PFAS alternatives are safer. Of the three companies that have already phased out all PFAS, only Levi Strauss & Co. specified in its survey response a screening process to ensure that such alternatives are evaluated for hazards. (Because the question applied only to a subset of companies that received the survey, we did not include these results in the scoring rubric.)



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# PFAS in the Apparel Industry Scorecard

## SCORING RUBRIC AND METHODOLOGY

We reviewed survey responses returned to us as well as public statements and policies published by companies on their websites, on product pages in their online stores, and in their annual reports. We also examined Restricted Substance Lists, Vendor Codes of Conduct, corporate sustainability reports, and other publicly available information on company policies. On the basis of this information, we scored timeline, product scope, and transparency of company PFAS commitments as well as PFAS labeling and testing protocols.

Companies received the highest scores for their timeline if they had already removed PFAS from their products, and progressively lower scores for lengthier timelines. Similarly, companies received the highest scores for product scope if their commitments applied to all apparel sold, and progressively lower scores based on the number of apparel product categories excluded from their commitment. Companies also received points in the transparency category for making their commitments publicly available and for labeling the PFAS status of apparel advertised as water or stain resistant on their websites or on the products themselves. Companies also received points for validating their commitment compliance (confirming the absence of restricted PFAS chemicals using its own or third-party testing protocols).

Points were tallied to create a baseline score for each company. Then, to accurately reflect the level of public health protection afforded by company PFAS policies, we multiplied this baseline score according to the definition of PFAS used in the company policy. For instance, if a company used the Organisation for Economic and Co-operative Development (OECD) definition of PFAS in its commitment, we multiplied its score by 1. If a company excluded one PFAS from its definition, such as PFAS Polymer PTFE, we multiplied its score by 0.6 and if it excluded more than one, we multiplied its score 0.4. If a company policy included in its commitment just PFOA and PFOS, we multiplied its score by 0. The multiplier was also 0 if a company “*restricted no PFAS chemicals*” (from Appendix 2). Thus, a company could be awarded points for the scope and timeline of its policy but receive a final score of 0 if the policy excluded almost all PFAS. For a detailed description of the scoring rubric and methodology, please see Appendices 1 and 2.

TABLE I: OUTDOOR APPAREL BRANDS

Company	Example Brands	SCORING CRITERIA							Final Score	Final Grade
		Responded to Survey?	Timeline	Product Scope	Transparency	Validation	Baseline Score	Multiplier		
Patagonia Inc.	Patagonia	10	15	35	15	5	80	1	80	B
VF Corporation	The North Face, Timberland	10	10	15	10	5	50	1	50	D
L.L. Bean	L.L. Bean	10	0	35	0	5	50	1	50	D
Columbia Sportswear	Columbia, Prana	0	35	35	10	5	85	0.4	34	F
REI	REI Co-op	0	25	0	0	5	85	0.4	34	F
Wolverine Worldwide	Wolverine, Merrell	0	35	35	10	5	85	0	0	F
Academy Sports and Outdoors	Academy Sports and Outdoors, Magellan Outdoors	0	0	0	0	0	0	0	0	F

Much of the PFAS used in outdoor apparel are PFAS polymers like PTFE, used in waterproofing coatings and membranes in products like raincoats, tents, and sleeping bags.

With a commitment to phase out use of all PFAS in its supply chain—including PFAS polymers—by 2024, Patagonia leads the outdoor apparel industry in its timeline to stop using PFAS in its supply chain. The company also labels products that advertise water resistance and do not contain PFAS as having a “PFC-free finish” or “Nonfluorinated DWR.”

As shown in Table 1, all other outdoor apparel companies received a grade of D or worse. VF is ahead of many in the industry in establishing a timeline to eliminate most PFAS use, but unfortunately it has not included PTFE in this commitment—a loophole that leaves the public and environment at risk from PFAS pollution. VF also labels some products in its The North Face line that are advertised as water resistant as “PFAS-free” but doesn’t do this across all its products and brands. Like VF, L.L. Bean received a D grade with a commitment to phase out all PFAS, including PTFE, by 2026, a timeline so long that it earned 0 points in the scoring rubric.

REI has restricted the use of some PFAS but excludes more than two from its policy. And while Columbia Sportswear restricts the use of several PFAS chemicals, company policy does not ban all PFAS in its materials, also hurting its score. Academy Sports and Wolverine Worldwide have restricted the use of just PFOS and PFOA in their supply chains.

Patagonia’s commitment to eliminate PFAS from its supply chain shows that such action is possible. In addition, companies not included in this survey because they are headquartered in Europe (e.g., Jack Wolfskin, Houdini and Vaude) or because they are primarily a fabric and materials manufacturer (e.g., Polartec) have demonstrated that it is technologically feasible to stop selling all apparel that contains PFAS today. The rest of the industry should follow this example immediately.

With their broad reach and power to move the market through purchasing power, apparel retailers can adopt impactful policies that will significantly reduce PFAS pollution generated by the sector. Unfortunately, as Table 2 indicates, the U.S. retail industry has yet to seize this opportunity. Target is notable for adopting a definition of PFAS that conforms with scientific consensus and a commitment to phase out PFAS use in the textiles it manufactures directly. This kind of action helps to build momentum for strong regulatory intervention to protect the public from contamination. Target’s goal to eliminate PFAS from textiles, however, does not include products that it does not manufacture directly, and the company does not label which products contain PFAS and which do not. Thus, consumers will not be able to make an informed choice if they want to avoid buying PFAS-containing apparel.

According to publicly released information, Costco has not yet required its suppliers to stop using PFAS chemicals but does work to help them reduce their use. JCPenney doesn’t have a publicly available commitment to phase out PFAS use in the apparel sold in their stores; Kohl’s has restricted only PFOA and PFOS from use in its supply chain; and Walmart, Macy’s, and Nordstrom lack any publicly available policy regarding PFAS use in the apparel sold in their stores.

TABLE 2: APPAREL RETAILERS

Company	SCORING CRITERIA							Final Score	Final Grade
	Responded to Survey?	Timeline	Product Scope	Transparency	Validation	Baseline Score	Multiplier		
Costco Wholesale	0	0	35	10	5	50	1	50	D
Target Corp.	10	25	0	10	5	50	1	50	D
Kohl’s Corporation	0	35	35	10	5	85	0	0	F
Nordstrom	0	35	35	10	5	85	0	0	F
JCPenney	0	0	35	0	0	0	0	0	F
Macy’s, Inc.	0	0	0	0	0	0	0	0	F
Walmart Inc.	0	0	0	0	0	0	0	0	F

TABLE 3: SHOES AND SPORTS APPAREL BRANDS



## SHOES AND SPORTS APPAREL BRANDS

Company	Sample Apparel Brands	SCORING CRITERIA							Final Score	Final Grade
		Responded to Survey?	Timeline	Product Scope	Transparency	Validation	Baseline Score	Multiplier		
Keen Footwear	Keen	10	35	25	15	5	90	1	90	A-
Deckers Brands	Ugg, Teva	0	35	35	15	5	90	1	90	A-
New Balance	New Balance	10	35	35	10	5	95	0.6	57	C-
Nike, Inc.	Nike	0	35	35	15	5	90	0.6	54	D+
Under Armour	Under Armour	10	0	0	0	5	15	0	0	F
Skechers	Skechers	0	0	0	0	0	0	0	0	F

U.S. footwear brands surveyed, shown in Table 3, varied in their policies and commitments around PFAS use. Keen Footwear and Deckers Brands lead the sector with a ban on all added PFAS in their footwear. In addition to ridding its own footwear supply chain from added PFAS, Keen has issued a challenge to all other footwear companies to do the same and provided a detailed methodology they can use to achieve this goal. While this progress is notable, the company received a score of A- due to the exclusion of one product category (bags) from its commitment.

New Balance has adopted PFAS elimination policies, but its commitment excludes PTFE. Nike scored a D+ because its commitment to phase out per- and polyfluorinated finishes from their products could exclude membranes that contain PFAS polymers. According to its survey response, Under Armour restricts just PFOA and PFOS from its supply chain, and Skechers has not disclosed a policy on PFAS use in its supply chain.

Levi Strauss & Co was one of the earliest adopters of a PFAS elimination policy and currently leads the apparel industry in removing all PFAS from its supply chain, as seen in Table 4. The company's commitment also does not exclude any PFAS chemicals like PFAS polymers. Levi Strauss & Co's strong PFAS policy should serve as a model for other companies in the apparel industry. Victoria's Secret and Decker Brands also deserve mention for early adoption and phaseout of PFAS use in their supply chains.

Several other indoor apparel brands have made commitments to eliminate PFAS use in their supply chains this year and in future years. With commitments to phase out all PFAS use in their supply chains by 2022 and 2023 respectively, Ralph Lauren and Gap Inc. deserve special mention. PVH, American Eagle, and Abercrombie and Fitch have newly adopted commitments to remove PFAS use in their supply chains (first disclosed in responses to this survey) and are welcome additions to the growing list of apparel companies working to eliminate PFAS pollution from the apparel sector.

The list of companies that have already phased out or have committed to phasing out PFAS is made up of some of the best-known indoor apparel brands in the United States. Their commitments should serve as a call for the rest of the indoor apparel sector to immediately make their own commitments.

TABLE 4: INDOOR APPAREL BRANDS



# INDOOR APPAREL BRANDS

Company	Sample Apparel Brands	SCORING CRITERIA							Final Score	Final Grade
		Responded to Survey?	Timeline	Product Scope	Transparency	Validation	Baseline Score	Multiplier		
Levi Strauss & Co	Levi's, Dockers	10	35	35	15	5	100	1	100	A+
Victoria's Secret	Victoria's Secret, PINK	0	35	35	15	5	90	1	90	A-
Ralph Lauren Corporation	Ralph Lauren, Polo	10	25	35	10	5	85	1	85	B+
Gap Inc.	Gap, Old Navy	10	20	35	10	5	80	1	80	B
American Eagle Outfitters	American Eagle, Aerie	10	15	35	10	5	75	1	75	B-
PVH Corp.	Calvin Klein, Tommy Hilfiger	10	15	35	10	5	75	1	75	B-
Abercrombie & Fitch	Abercrombie & Fitch, Hollister	10	10	35	10	5	70	1	70	C+
Capri Holdings	Michael Kors, Jimmy Choo	0	0	0	0	0	0	0	0	F
G-III Apparel Group Ltd.	DKNY, Andrew Marc	0	0	0	0	0	0	0	0	F
Tapestry, Inc.	Coach, Kate Spade	0	0	0	0	0	0	0	0	F

## SPOTLIGHT ON PFAS USE IN THE OUTDOOR APPAREL SECTOR: COLUMBIA SPORTSWEAR

PFAS use in the outdoor apparel industry remains widespread. With very few commitments to fully eliminate the use of these toxic chemicals in manufacturers' supply chains, the sector is one of the apparel industry's biggest contributors to PFAS pollution and exposure. The continued use of PFAS in products sold by Columbia Sportswear—one of the largest outdoor apparel brands in the United States—is an example of this glaring problem.<sup>51</sup>

According to its publicly released documents, Columbia Sportswear has not established a public timeline to phase PFAS out of all its products.<sup>52</sup> The company also does not label all products that are coated in PFAS or use PFAS membranes so that its customers can make fully informed decisions about which products to purchase. Columbia Sportswear's PFAS policy failure is especially notable given the following:

### **A company brand has demonstrated a willingness to phase out PFAS.**

Columbia Sportswear brand prAna, which markets sustainable clothing, committed to phasing out PFAS by early 2022, demonstrating a belief in the feasibility of removing PFAS from the supply chain of an outdoor apparel brand. Yet this action to protect the public and planet from PFAS has not been extended to all Columbia Sportswear brands.

### **Continued use of PFAS directly contravenes the company's stated commitment to help "sustain places."**

The company's most recent annual corporate responsibility report notes the importance of "sustaining places" and states that chemical management is one of the pillars it uses to help "sustain the places we live, work, and play in."<sup>53</sup> Despite this, Columbia Sportswear still uses PFAS in its supply chain. The company bans just a few of thousands of PFAS chemicals.

### **Continued PFAS use could undermine sales growth among younger consumers.**

Industry experts believe that Columbia Sportswear would like to expand its customer base to younger middle- and upper-middle-class customers.<sup>54</sup> Numerous studies and polls indicate that Generation Z is much more focused on sustainability than its consumer predecessors and that a significant majority of them prefer sustainable brands.<sup>55</sup> Given the rising public profile of PFAS contamination due to films like *Dark Waters*, regulatory action, news stories, and the emergence of outdoor apparel companies that have already committed to eliminating PFAS from their supply chains, outdoor apparel companies that fail to ban all PFAS use risk a diminished "green" reputation.

### **Continued PFAS use could exacerbate additional risks identified by Columbia Sportswear.**

Columbia Sportswear's 2020 annual report to shareholders lists changing consumer and customer sentiment as an investor risk.<sup>56</sup> The potential for changing attitudes towards the use of PFAS chemicals is a high-profile example of this risk, especially amid growing calls to end this use from consumers and nongovernmental organizations. The annual report also lists a risk of failing to meet the need for ongoing innovation to sustain commercial success. A failure to develop and bring to market environmentally friendly alternatives to PFAS to achieve water resistance and breathability embodies this risk.

In addition, in the coming months and years, if government policies are adopted at the state and local levels to curb PFAS use in apparel, Columbia Sportswear's PFAS-containing products will become increasingly difficult to sell. The European Union, a market for Columbia Sportswear apparel, for instance, has proposed banning all nonessential uses of PFAS. This ban would include a prohibition on its use in textiles.<sup>57</sup> The United States may also move in this direction. In this country, legislation enacted in Maine in 2021 will ban nonessential uses of PFAS in the state by 2030.<sup>58</sup> Legislation to prohibit the use of the chemicals in several major apparel categories has also been proposed in New York State.<sup>59</sup>

To minimize the risks posed by continued PFAS use in its supply chain, Columbia Sportswear should immediately adopt a time-bound commitment to eliminate all PFAS chemicals from its supply chain, including PFAS polymers. While it works to achieve this phaseout, the company should label all products that do contain PFAS as such so consumers can make educated decisions about their purchases.



# Recommendations

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PFAS chemicals are extremely persistent, and given this, future generations will bear the burden of the decisions made today regarding their use. Scientific experts continue to raise the alarm about the health and environmental threats from the use of PFAS chemicals, and the more each chemical is studied, the more health risks are identified.<sup>60</sup> The ubiquity of these chemicals across the globe points to the urgency of banning their use in consumer apparel, where they are not essential for health and safety or the functioning of society. While PFAS already released into the environment will last for generations, stopping future PFAS pollution now will help save the planet and its people from an escalating problem that will be even more difficult to confront later.

Recognizing these dangers, the European Union has, as mentioned above, already proposed banning all nonessential uses of PFAS, including their use in textiles.<sup>61</sup> In the United States, individual states have taken similar steps. Legislation enacted in 2021 will ban nonessential uses of PFAS in Maine.<sup>62</sup> Legislation adopted in 2021 in California bans PFAS use in numerous textile products intended for use by children, including changing pads, nursing pillows, and crib mattresses.<sup>63</sup> Legislation to prohibit the use of the chemicals in several major apparel categories has also been proposed in New York State, and rules to prevent the use of PFAS-containing aftermarket fabric treatments have been put forward in California and Washington State.<sup>64</sup>

As these international and state proposals and others make progress, the United States has yet to pass a comprehensive national plan to stop the PFAS pollution pipeline.

## WHAT SHOULD APPAREL COMPANIES DO?

With their international reach, market voices, and powerful microphones, major apparel brands and retailers have an opportunity to lead in the effort to protect consumers and the environment from PFAS.

The textile industry is beginning to move in the direction of phasing out all PFAS use. Major U.S. carpet manufacturers, for instance, have stopped using PFAS as a stain-resistant coating. The national home-improvement chains Lowe's and Home Depot have banned the sale of aftermarket PFAS stain treatments for textiles.<sup>65</sup> Several national apparel brands have already demonstrated that ending the use of these toxic chemicals in their supply chains is not only feasible but will be received favorably by consumers.<sup>66</sup> Accordingly, apparel companies should:

### 1. IMMEDIATELY PUBLICLY COMMIT TO A TIME-BOUND PHASEOUT OF ADDED PFAS IN THEIR APPAREL SUPPLY CHAINS.

This commitment can be adopted today. It should encompass all PFAS, including PFAS polymers, and include a strong implementation plan that requires testing of products during the manufacturing process to ensure compliance. Companies should establish quantifiable metrics they can use to measure progress toward this goal, ensure full traceability of all elements in their supply chain to determine whether suppliers are using PFAS, and regularly publicly report their results.

### 2. ENSURE THAT ANY PFAS ALTERNATIVES ADOPTED ARE SAFE FOR CONSUMERS, COMMUNITIES, WORKERS, AND THE ENVIRONMENT.

To avoid replacing PFAS with equally dangerous chemical alternatives—the “regrettable substitution” seen in the past—companies should assess any PFAS alternatives they seek to adopt using screening mechanisms that evaluate chemicals for hazards, such as GreenScreen,<sup>®</sup> ChemFORWARD, and Scivera.<sup>67</sup>

### 3. MAKE CERTAIN THAT APPAREL INDUSTRY TRADE ASSOCIATIONS FOLLOW THE SCIENCE.

Major apparel industry trade associations have yet to adopt the accepted scientific definition of PFAS published by OECD or urge members to eliminate all PFAS from their supply chains. Major brands and retailers included in this survey have significant sway within these associations and should urge them to catch up with the available science and adopt policies that identify all PFAS chemicals as a priority for elimination in the apparel industry.

### 4. LABEL PRODUCTS THAT CONTAIN PFAS AS SUCH UNTIL A PHASEOUT IS ACHIEVED.

Consumers should be given tools to protect themselves and the planet from toxic chemicals. Brands and retailers should provide consumers with up-to-date information on which products in their store contain PFAS and which do not. Companies should provide this information on product stickers and hangtags and on their websites.

## WHAT SHOULD NATIONAL AND STATE GOVERNMENTS DO?

### 1. BAN THE USE OF PFAS IN CONSUMER APPAREL.

PFAS chemicals are so persistent and dangerous that policymakers should adopt laws immediately banning their use except where necessary to protect public health and safety or the functioning of society. PFAS use in consumer apparel—from shoes to raincoats—is not essential to protect public health and safety. Moreover, alternatives are already on the market, and the list of PFAS-free waterproofing technologies is growing rapidly. PFAS use in consumer apparel should be banned. Policymakers should also ensure that these laws do not have exceptions. As demonstrated by the failure to phase out all PFAS when regulators targeted only PFOA and PFOS for elimination, excluding some PFAS from bans only creates loopholes for the industry to exploit.<sup>68</sup>

### 2. ADOPT STANDARDS THAT REQUIRE THE FULL CLEANUP OF ALL PFAS POLLUTION AFFECTING OUR DRINKING WATER.

As they work to stop PFAS pollution, policymakers must also ensure that existing contamination is cleaned up to the greatest extent possible. That means establishing wastewater cleanup regulations that require polluters to remove contamination to the greatest degree technology allows.

### 3. REQUIRE LABELING OF CONSUMER PRODUCTS THAT CONTAIN ANY PFAS UNTIL ALL USES ARE PHASED OUT.

Consumers deserve to know whether their purchase and use of a product will expose them to dangerous chemicals and contribute to a global PFAS contamination crisis. Policymakers should therefore require brands and retailers that sell PFAS-containing products to label these products as such through hangtags, product stickers, and information posted on their websites.

### 4. ADD PFAS TO THE LIST OF HAZARDOUS CHEMICALS COVERED BY THE RESOURCE CONSERVATION AND RECOVERY ACT.

The federal Resource Conservation and Recovery Act (RCRA) requires polluters to pay for the cleanup of hazardous chemicals identified by the Act. When a polluter cannot be identified, funds from taxpayers or an industry fee can be applied to clean up the contamination. Unfortunately, because PFAS chemicals are not currently included on the RCRA list, communities affected by PFAS cannot access these funds and are often left with an unremediated legacy of pollution. NRDC research shows that many of these communities are already overburdened by multiple sources of pollution and other factors that make them more sensitive to pollution.<sup>69</sup>

## WHAT SHOULD CONSUMERS DO?

When shopping for a raincoat or clothing or shoes, consumers often encounter persuasive marketing messages touting “advanced technologies” that confer dirt resistance and water repellency to keep them comfortable, dry, and safe. For example, REI’s Drypoint GTX Jacket contains PFAS, according to a recent study published by the nonprofit Toxic-Free Future.<sup>70</sup> It is marketed with the following banner on the retailer’s website:

Designed to keep you comfortable on stormy days when you're moving fast and light in the backcountry, the men's REI Co-op Drypoint GORE-TEX® jacket is highly breathable, waterproof and windproof.

TYPE OF WATERPROOFING	VENTILATION	BACK LENGTH	WEIGHT
GORE-TEX Active waterproof breathable laminate	Core Vents	Hip-length	10.5 ounces

**Sustainability** Contains materials that meet the bluesign® criteria Fair Trade Certified™ factory

Source: REI Co-op, Drypoint GTX Jacket—Men's, <https://www.rei.com/product/125348/rei-co-op-drypoint-gtx-jacket-mens>.

While such marketing messages can be very compelling, they leave out critical information about the chemical makeup of these materials and their implications for our health and that of the planet. As you shop for water-resistant and breathable apparel, look beyond the marketing materials and ask yourself these additional questions:

### I. DOES THIS ITEM CONTAIN PFAS?

If apparel is labeled “waterproof,” “breathable,” “stain repellent,” or “dirt repellent,” chances are it uses a PFAS coating or membrane. Research brands in advance to find out whether that is the case. Make sure to specifically find out if the product is made using PFAS polymers like PTFE, because some manufacturers do not include this group of PFAS chemicals in their definition. Because some labeling around PFAS can be confusing or downright misleading, use our Consumer Guide to PFAS and Labels, below, to understand what some labels mean.

## CONSUMER GUIDE TO PFAS AND LABELS

While apparel brands and retailers are not required to indicate whether their products contain PFAS, some do so voluntarily. This labeling, however, can be confusing and sometimes downright misleading. Many, for instance, don’t include the presence of PFAS polymer like PTFE (polytetrafluoroethylene), a type of PFAS in widespread use in the apparel industry. Below is our guidance to help consumers understand the labeling of apparel related to this class of toxic chemicals.

Labels to Watch For	What It Really Means	Recommended Action
Water-resistant, waterproof, stain-resistant, dirt-repellent, and/or DWR	Products with these labels may contain PFAS.	Ask the manufacturer if product contains any PFAS (including PFAS polymers). If it does, avoid buying.
PFOS and/or PFOA Free	This product may contain PFAS. PFOS and PFOA refer to only two of thousands of PFAS chemicals that could be in the product.	Ask the manufacturer if product contains any PFAS (including PFAS polymers). If it does, avoid buying.
PFC Free and/or PFCec Free	This product may contain PFAS. PFC and PFCec could refer to only a subset of PFAS chemicals and not the many thousands that have been developed since the term PFC came into use.	Ask the manufacturer if product contains any PFAS (including PFAS polymers). If it does, avoid buying.
PFAS Free	This product could be PFAS free. Manufacturers, however, don’t always include PFAS polymers, a type of PFAS, in their definition of PFAS, so the product may not actually be PFAS free.	Ask the manufacturer if product contains any PFAS polymers. If it does, avoid buying.

Source: Natural Resources Defense Council.

### 2. DO I NEED A SUPER-DUPER WATERPROOF, DIRT-RESISTANT, AND BREATHABLE JACKET?

If a product you are considering contains PFAS, ask whether you really need the added functionality it may provide. Most daily use of apparel doesn’t require these added properties. Raincoats that do not have PFAS membranes, for instance, can still keep you dry during everyday use; clothes with dirt or stains on them can often be washed clean. In almost all cases, the added benefit that PFAS confers is not worth the potential of toxic exposure to the consumer or accumulation in the environment.

### 3. CAN I BUY A PFAS-FREE ALTERNATIVE?

In addition, some outdoor apparel companies have already developed waterproof apparel that does not contain PFAS, and more are coming to the market every day. In 2021, Polartec, for instance, announced that it would remove PFAS from all its products.<sup>71</sup> Backpack manufacturer Osprey has adopted nonfluorinated finishes and backpack covers for water and stain repellency.<sup>72</sup>

### 4. WHAT CAN I DO IF THERE IS NO PFAS-FREE ALTERNATIVE AVAILABLE?

Demand change. Ask your favorite brand to stock more non-PFAS alternatives. Speak to the manager of the store you’re shopping at, call the customer service line, or write to the CEO. Let them know that selling apparel coated with PFAS threatens public health and the planet and that they should put PFAS-free alternatives on their shelves.

## *Conclusion*

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PFAS chemicals pose one of the most profound toxic threats to our planet and its people. Given their widespread use and persistence, the PFAS pollution we create today will expose generations to come to harmful chemicals. The most powerful action we can take to combat this crisis of contamination is to stop all use of PFAS in consumer apparel immediately.

As a major user of PFAS, the apparel industry can play a key role in eliminating new PFAS pollution by ceasing its use. Where added water repellency or stain resistant functionality is necessary, brands and retailers in this sector should immediately turn to safer alternatives.

As demonstrated by several companies surveyed for this scorecard and by smaller and non-U.S.-based companies, it is possible to phase out the use of PFAS from all apparel products. Companies that have yet to adopt a timeline to eliminate all PFAS from use in their supply chains should act immediately to do so. And given the environmental and public health concerns of many of its customers, the outdoor apparel industry in particular should take special heed of its low scores and act immediately to end the use of these toxic chemicals.

Consumers can help make this happen by asking their favorite brands and retailers to stop making or selling PFAS-treated apparel and to develop and adopt less toxic alternatives. Finally, regulators should move more quickly to ban all nonessential uses of PFAS, including in consumer apparel. Only with decisive action from the marketplace, consumers, and regulators will we be able to halt the flow of contamination that runs off the jackets, shoes, and other apparel that millions of Americans wear each day.



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# *Appendix 1: Methodology and Survey Questions*

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The authors of this report surveyed (via email) 30 of the top apparel brands and retailers in the United States, as ranked by 2020 total U.S. sales.

To categorize scores for the scorecard, we assigned each company to one of four categories: retailer, shoes/sports apparel, outdoor apparel, and indoor apparel. If a company sold products in multiple categories, we assigned it to the category that its largest brand belongs to. If a company could be classified as either a retailer or a brand (for example, REI and Academy Sports and Outdoors), we listed the company in the category for which it is best known among consumers.

We asked a series of questions about their 1) policy on using PFAS in their supply chain; 2) implementation of this policy; 3) transparency, including whether their policy is publicly available; and 4) verification process. We also assessed how well company policies adhered to the scientific definition of PFAS. The complete survey can be found below.

The companies were given grades based on their policies and actions related to PFAS use in their apparel products. In addition to reviewing survey responses, we examined company websites, annual reports, Restricted Substances Lists, Vendor Codes of Conduct, corporate sustainability reports, and other available information on company policies.

We sent two follow-up emails and a meeting request to companies that did not respond to the survey.\* In cases where survey responses or website statements were not clear, we followed up with clarifying questions via email and phone. Where there was a discrepancy between the information provided in the survey and in publicly available sources, we made every effort to resolve the inconsistency and asked companies to align public information with internal communications. When this was not possible, we based our analyses on publicly available information. We also requested (via email) that each company review a draft score and propose any changes, giving them the opportunity to furnish additional public documentation before we finalized the report. This communication also notified companies of the impact their responses have on their scores. We note these changes, and the reasoning behind them, in Appendix 3. Company policies are summarized in Appendix 4.

After receiving final responses, we also adjusted the product scope category of our scoring rubric to better reflect company commitments. Within product scope, we added “Two full product categories excluded” and awarded this group 20 points. We changed the points awarded to “One full product category excluded” to 25 points instead of 20 points.

\* Due to an administrative error, we did not send a follow-up email after the initial survey emailed to REI Co-op.

## NATURAL RESOURCES DEFENSE COUNCIL AND FASHION FWD 2021 PFAS AND APPAREL BRAND SURVEY

1. Does your company have, or has it had in the past, a quantifiable goal for eliminating all PFAS chemicals from your products (products include but are not limited to indoor apparel, outdoor apparel, shoes, accessories, and sportswear)?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, please complete the table below to describe your policy, to indicate by which year you have committed to eliminate PFAS chemicals from each product category you sell. If your company does not sell or manufacture a product category, please note NA in the applicable box.

If this policy is published, please provide the URL: \_\_\_\_\_

If unpublished, please provide a copy: \_\_\_\_\_

	Already accomplished	Year ending 2021	2022	2023	2024	2025	2026+
Fashion apparel							
Sports wear							
Outdoor gear							
Accessories*							
Shoes							
Other (please specify)							

\*Articles that are not part of primary clothing, e.g., bags, belts, scarves, hats, gloves, etc.

2. Does your company sell products that will not or have not met this commitment?

Yes \_\_\_\_\_ No \_\_\_\_\_

3. If yes, please list all products that will not or have not met this commitment.

**Fill in Blank** \_\_\_\_\_

4. Have you established interim benchmarks toward full implementation of your policy targets? If yes, please indicate what the benchmarks are for each category. For example, 20% implementation of outdoor gear by 2022, 80% of shoes by 2023, etc.

**Fill in Blank** \_\_\_\_\_

5. The scientific definition of PFAS is “chemicals with at least one aliphatic perfluorocarbon moiety.” Does your commitment exclude any chemicals included in this definition?

Yes \_\_\_\_\_ No \_\_\_\_\_

6. If yes, which chemicals are excluded (if the list can be found at URL, please list here)?

**Fill in Blank** \_\_\_\_\_

7. Does your company use third-party certifications to verify compliance with your PFAS elimination policy (e.g., GreenScreen, etc. )?

**Yes** \_\_\_\_\_ **No** \_\_\_\_\_

If yes, which certification(s) do you use?

**Fill in Blank** \_\_\_\_\_

8. Does your company require independent third-party auditing/testing of your suppliers to verify compliance with your PFAS elimination policy?

**Yes** \_\_\_\_\_ **No** \_\_\_\_\_

If yes, which third-party auditor/laboratory do you use?

**Fill in Blank** \_\_\_\_\_

If no, does your company do its own auditing of suppliers? If so, please describe.

**Fill in Blank** \_\_\_\_\_

9. Have you established criteria to evaluate the hazards of PFAS alternatives in products? If so, please specify how you evaluate alternatives.

**Fill in Blank** \_\_\_\_\_

## *Appendix 2: Scoring Rubric*

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The total points available was 100. Thresholds for grades were assigned as follows:

96-100: A+

91-95: A

86-90: A-

81-85: B+

76-80: B

71-75: B-

66-70: C+

61-65: C

56-60: C-

51-55: D+

46-50: D

41-45: D-

40 or less: F

Scoring categories and the scoring for each were as follows:

### **1. Responded to Survey - Total points available: 10**

We awarded 10 points to companies that returned a survey or follow-up responses to questions by February 1, 2022. Full points were awarded for full completion and partial completion of the questionnaire.

### **2. Timeline - Total points available: 35**

Given the urgency of eliminating PFAS contamination, our scoring rubric awarded maximum points to companies that have already achieved their PFAS elimination goal and awarded fewer points for longer timelines. Companies that had phased out the PFAS chemicals targeted in their commitments as of November 1, 2021, received 35 points in this category. Those that planned to eliminate the PFAS chemicals targeted in their commitment by December 31, 2022, received 25 points. Those planning to do so by the end of 2023 received 20 points; by the end of 2024, 15 points; and by the end of 2025, 10 points. Those that had no goal to eliminate PFAS or planned to achieve their goal in 2026 or later received 0 points.



### 3. Product Scope – Total points available: 35

To recognize the comprehensiveness of company PFAS commitments, we awarded a maximum of 35 points to companies that applied their commitment to all apparel product categories. These included indoor and outdoor clothing, accessories (e.g., bags, belts, scarves, hats, gloves), shoes, and gear made with textiles (including but not limited to sleeping bags, mats, and tents). Companies received 25 points if they excluded one of these product categories from their commitment, 20 points if two product categories were excluded, and 15 points if more than two categories were excluded. We awarded 0 points for a commitment that did not include any full product category (such as a commitment that applied only to specific brands within a type of apparel). In the absence of PFAS labeling by companies that fall into this category, consumers cannot make an informed decision if they wish to avoid buying products that contain PFAS. Thus, public health protection is minimized.

Companies that manufacture and sell many types of consumer products were scored only on their PFAS commitments related to apparel. Again, we did not factor in the volume of existing use by a brand or sector in the scoring scale.

### 4. Transparency – Total points available: 15

Raising public awareness is a key tool available to brands and retailers to help shift purchases away from products that contain PFAS. Therefore, we awarded 10 points to companies that made their policies and commitments around these chemicals available on their websites. We also awarded 5 points to companies that have not completely phased out PFAS from apparel but label the apparel products of each brand they sell as follows: Apparel that is advertised as having added water or dirt repellency and contains PFAS is labeled as containing PFAS or PFCs. Apparel that is advertised as having added water or dirt repellency but does not contain PFAS is labeled as not containing PFAS or PFCs. PFCs must be defined using the definition of the Organisation for Economic and Co-operative Development (OECD). A label is defined as an in-store sticker or hangtag or, online, as information posted on a product page.

### 5. Validation – Total points available: 5

We awarded 5 points to companies with a PFAS commitment that includes testing of products internally or by a third party to verify the absence of restricted PFAS. This practice builds confidence within the company and among the public that the company is working to accurately trace PFAS use in its supply chain.

### 6. Multiplier

The OECD has adopted a definition that reflects scientific consensus in order to eliminate industry-fomented confusion. The need for companies to abide by this science is critical to efforts to combat PFAS pollution, especially in the face of PFAS industry efforts to convince the public, and those to whom it would like to sell PFAS, that only certain types of PFAS are dangerous.<sup>73</sup> Accordingly, after totaling points awarded as described above, we applied a multiplier that reflected how closely each company's commitment reflected the scientific definition of PFAS (noted in Appendix 4).

We multiplied a company's baseline score by 1 if its commitment included all PFAS, as defined by the OECD. We multiplied the baseline score by 0.6 if a company excluded PTFE from its commitment. We used a multiplier of 0.4 if the company excluded more than one PFAS chemical from its commitment. Finally, we used a multiplier of 0 for those that excluded only PFOA and PFOS (and their salts and related compounds) or restricted no PFAS chemicals at all. Under an industry agreement with the U.S. EPA, PFOA and PFOS have already been phased out in the United States. Thus, restrictions on just these two chemicals were not deemed sufficient to receive points.

## SCORING RUBRIC SUMMARY

Total Points Available: 100

CRITERIA	POINTS AWARDED
<b>Responded to Survey</b>	<b>10</b>
<b>Timeline for Phasing Out PFAS Chemicals Included in Policy</b>	<b>35</b>
Already phased out	35
Commitment to phase out by end of 2022	25
Commitment to phase out by end of 2023	20
Commitment to phase out by end of 2024	15
Commitment to phase out by end of 2025	10
Commitment to phase out in 2026 or later, OR No time-bound commitment to phase out any PFAS chemicals	0
<b>Product Scope</b>	<b>35</b>
All apparel included	35
One full product category excluded (e.g., shoes, raincoats, costumes, backpacks, bags, belts, scarves, hats, gloves, etc.)	25
Two full product categories excluded	20
More than two full product categories excluded	15
All full product categories excluded	0
<b>Transparency</b>	<b>15</b>
PFAS commitment is available to the public	10
If the company has not completely eliminated PFAS, all products advertised with water- or stain-resistant are labeled as containing, or not containing PFAS	5
<b>Validation</b>	<b>5</b>
Company validates the absence of restricted PFAS chemicals using its own or third-party testing	5
<b>Baseline Score</b>	
<b>Multiplier*</b>	
<b>Final Score</b>	
<b>Final Grade*</b>	

\*See rubric summary, above, for breakdown of multiplier and grade allocations.

## ***Appendix 3: Score Changes Made After Company Score Review***

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Before finalizing the scores, we requested via email that each company review a draft score and gave each an opportunity to update its score by returning the survey, providing NRDC with any policy changes, or sharing revisions to public-facing communications on PFAS. Changes were made in the following cases:

### **PATAGONIA**

- Awarded 10 additional points for making PFAS commitment publicly available on website
- Awarded 10 additional points for returning survey

### **GAP INC.**

- Awarded 10 additional points for returning survey
- Adjusted multiplier from 0.6 to 1 after response noted that PFAS membranes are included in PFAS commitment

### **RALPH LAUREN CORPORATION**

- Awarded 10 additional points for returning survey
- Adjusted multiplier from 0.6 to 1 after response and website update noted that all PFAS materials are included in commitment

### **L.L. BEAN**

- Awarded 10 additional points for returning survey
- Awarded 35 additional points for product scope that included all L.L. Bean products in commitment
- Awarded 5 points for detailing validation methods in survey

### **ABERCROMBIE & FITCH**

- Awarded 10 additional points for returning survey
- Subtracted 15 points for updated commitment timeline of 2025. Original timeline score allocated was 35 for already having achieved a weaker commitment to restrict just PFOA and PFOS.
- Adjusted multiplier from 0 to 1 after response and website update noted PFAS commitment applies to all PFAS

### **AMERICAN EAGLE**

- Awarded 10 additional points for returning survey
- Awarded 15 additional points for new 2024 commitment timeline detailed in survey response
- Awarded 35 additional points for encompassing all apparel in commitment
- Awarded 10 additional points for making commitment publicly accessible on company website
- Awarded 5 additional points for detailing validation methods
- Adjusted multiplier from 0 to 1 after response noted all PFAS are included in commitment

### **PVH**

- Awarded 10 additional points for making commitment publicly accessible on company website

### **KEEN**

- Subtracted 10 points allocated to product scope to reflect exclusion of one product category (bags) from commitment

# *Appendix 4: Summary of Policies and Survey Responses for Companies Surveyed*

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Companies are listed in alphabetical order. Information concerning their PFAS commitments comes from responses to the survey and to follow-up emails, public statements made by the companies, and/or our efforts to locate such policies online.

We encourage companies to contact us directly with future updates concerning their PFAS policies and to make these policies publicly available.

## **ABERCROMBIE & FITCH**

**Corporate Headquarters:** 6301 Fitch Path Road, New Albany, OH 43054

**CEO:** Fran Horowitz

**Brands:** Abercrombie & Fitch, abercrombie kids, Hollister Co., Gilly Hicks, Social Tourist<sup>74</sup>

**Returned Survey:** Yes

**Identified PFAS Policy Public Communications:** 2022 RSL “PFAS Total Fluorine, Usage Ban Commitment 2025”<sup>75</sup>

**PFAS Chemicals Included in Restricted Substance List:** Usage Ban, PFAS Total Fluorine: Usage Ban Commitment 2025<sup>76</sup>

## **ACADEMY SPORTS AND OUTDOORS\***

**Corporate Headquarters:** 1800 North Madison Road, Katy, TX 77449

**CEO:** Ken C. Hicks

**Apparel Brands:** Academy Sports & Outdoors, AGame, Austin Trading Co., Brava, BCG, Freely, Game Winner, H2O Express, Magellan Outdoors, Marine Raider, Monarch, Mosaic, O’Rageous, Outdoor Gourmet, Ozone 500<sup>77</sup>

**Returned Survey:** No

**PFAS Chemicals Included in Restricted Substance List:** Not publicly available

**Other PFAS Policy Public Communications:** Not available

\*Academy Sports and Outdoors could have been classified as either a retailer or an outdoor apparel brand for the purposes of this report. We listed the company as the latter because it is best recognized by consumers as such.

## **AMERICAN EAGLE OUTFITTERS**

**Corporate Headquarters:** 77 Hot Metal Street, Pittsburgh, PA 15203

**CEO:** Jay L. Schottenstein

**Brands:** American Eagle, Aerie

**Returned Survey:** Yes

**Identified PFAS Policy Public Communications:** From Company Sustainability page:

Poly- and Perfluorinated Alkyl Substances (PFAS) are a group of chemicals that create a waterproof coating on apparel. These chemicals are known to persist in the environment, causing ecologic damage, and are toxic to human health. AEO is committed to eliminating all PFAs from our products by 2024.<sup>78</sup>

**PFAS Chemicals Included in Restricted Substance List:** Not publicly available

## CAPRI HOLDINGS

**Corporate Headquarters:** 11 West 42nd Street, 20th Floor, New York, NY 10036

**CEO:** John D. Idol

**Apparel Brands:** Versace, Jimmy Choo, Michael Kors

**Returned Survey:** No

**Identified PFAS Policy Public Communications:** Not publicly available

**PFAS Chemicals Included in Restricted Substance List:** Not available

## COLUMBIA SPORTSWEAR COMPANY

**Corporate Headquarters:** 14375 NW Science Park Drive, Portland, OR 97229

**CEO:** Timothy Boyle

**Apparel Brands:** Columbia, SOREL, Mountain Hardwear, prAna

**Returned Survey:** No

**Identified PFAS Policy Public Communications:** From Position Statement Regarding Efforts to Reduce and Eliminate Fluorochemicals (PFOS and PFOA):<sup>79</sup>

PFOS has been restricted in certain markets since 2008 and is restricted by our RSL. All Columbia brand products are PFOS-free to a limit of <1 µg/m<sup>2</sup>

Until recently PFOA, often referred to as C8 due to its 8-carbon chain structure, has been used in, or in the process of manufacturing, durable water repellent (DWR) finishes applied on external shell fabric and waterproof-breathable membranes.

PFOA has been the subject of a US EPA phase-out program and regulations in Europe, and is restricted by our RSL.

All Columbia brand products manufactured after January 1, 2015 are PFOA-free to a limit of <1 µg/m<sup>2</sup>.

While we have phased out LCPFCs including PFOS and PFOA, we recognize that there are still concerns about the impact of shorter chain perfluorinated chemicals such as perfluorohexanoic acid (PFHxA or C6) commonly used as replacements for LCPFCs. We will continue to pursue and adopt non-fluorinated alternatives for waterproof-breathability as the technology evolves to meet our customers' performance expectations.<sup>80</sup>

From prAna website:

**Where We Are:** We have identified all products using PFAS DWRs and have completely changed to PFAS-free DWR treatments starting with our Spring 22 collection.

**Where We're Going:** By early 2022, all DWR used will be PFAS-free. We have implemented strict boundaries on our chemistry usage and will only use PFAS-free DWR treatment when the product performance requires water repellency.

PFAS chemistries are widely used chemicals of concern that take a long time to break down in nature, and because of their persistence, are present in low levels throughout our environment—which is why we've taken strides to eliminate them. We switched our technology to better manage the chemicals used to make our products. Using PFAS-free DWR is our standard for responsible and effective waterproofing.<sup>81</sup>

**PFAS Chemicals Included in Restricted Substance List:**

Perfluorooctane sulfonic acid/Perfluorooctane sulfonate (PFOS)

Perfluorocarboxylic acid and salts

PFHxA

PFOA

PFOA-related substances

Heptadecafluoro-1-iodooctane

1H,1H, 2H, 2H-Perfluorodecyl iodide

8:2 FTOH Perfluorooctylethanol

Perfluorooctylethene

Perfluorooctylethyl acrylate or methacrylate (several)<sup>82</sup>

**COSTCO WHOLESALE**

**Corporate Headquarters:** 999 Lake Drive, Issaquah, WA 98027

**CEO:** W. Craig Jelinek

**Returned Survey:** No

**Identified Public Commitments to Phase Out PFAS Chemicals:**

From Costco website:

Through its Smart Screening Program, Costco is working with major third-party laboratories to identify and reduce chemicals of concern in different product categories. Perfluorinated and Polyfluorinated Chemicals (PFAS) are included on this list.

The Costco Smart Screening Program also includes textiles. This portion of the testing program is based on the Apparel and Footwear International RSL Management (AFIRM) Working Group. The AFIRM Restricted Substance List (RSL) has been adopted with third-party testing labs testing Costco's textile and footwear products. Examples of products tested include apparel and footwear, sporting goods, luggage, handbags, and home textiles like blankets, sheets, rugs, and towels. More information can be found at the AFIRM website.

Costco encourages its textile suppliers to implement in their supply chains the Zero Discharge of Hazardous Chemicals (ZDHC) Manufacturing Restricted Substance List (MRSL).

Costco recognizes and accepts third-party certifications into its Smart Screening Program, which aim to provide safe, traceable and sustainable products. These include:

The STANDARD 100 by OEKO-TEX® program is designed to protect consumer and environmental health by removing chemicals of concern (COCs) from products and their components. The STANDARD 100 by OEKO-TEX® is an independent verification that products have been tested for harmful substances. More information can be found on the OEKO-TEX® Standard website.

The Blue Way by BLUESIGN® represents the vision and mindset of responsible and sustainable manufacturing of textile consumer products. More information can be found on the BLUESIGN website.<sup>83</sup>

**PFAS Chemicals Included in Restricted Substance List:**

Aligned with AFIRM Restricted Substances List, which includes:

PFOS and related substances

PFOA and its salts

PFOA and related substances<sup>84</sup>

**DECKERS BRANDS**

**Corporate Headquarters:** 250 Coromar Drive, Goleta, CA 93117

**CEO:** Dave Powers

**Brands:** UGG, Koolaburra, Hoka One Hoka, Teva, Sanuk<sup>85</sup>

**Returned Survey:** No

**Identified PFAS Policy Public Communications:**

From Deckers Corporate Responsibility and Sustainability Report FY 2021:

Footwear products need a large number of materials that have non-wicking, waterproof, water-repellent and water-resistant properties. In replacing PFCs, many suppliers (Tier 1 and Tier 2) experienced tremendous difficulties because existing alternatives could not meet the non-wicking properties. With an adjustment of chemicals enhanced with nano-technology and improved processing, we were able to enhance the properties of our non-fluorinated compounds, enabling us to achieve PFC free results in early 2020 (machine calibration set to 0.01 mg/kg)<sup>86</sup>

Targets	FY 19 Achievement	FY 20 Achievement	Status	Due
Eliminate PFC from our supply chain (Tier 1 and 2)	On track to eliminate PFCs from our supply chain (Tier 1 and 2) by 2020	PFC free supply chain achieved (Tier 1 and Tier 2)	Target Achieved	2021

**PFAS Chemicals Included in Restricted Substance List:**

- Perfluorooctane Sulphonate (PFOS/PFAS)
- Perfluorooctanoic Acid (PFOA/PFAS), its salts & PFOA related substances
- Perfluoroundecanoic acid (PFUdA)
- Perfluorododecanoic acid (PFDoA)
- Perfluorotridecanoic acid (PFTrDA)
- Perfluorotetradecanoic acid (PFTeDA)
- Perfluorobutanesulfonic acid and salts (PFBS)/(L-PFBS)
- Perfluoro-3,7-dimethyloctanoic acid (PF3,7-DMOA)
- Perfluorohexanesulfonic acid and salts (PFHxS)/(L-PFHxS)
- 7H-Perfluoroheptanoic acid (HPFHpA)
- Perfluoro-1-heptanesulfonic acid (PFHpS)/(L-PFHpS)
- Perfluorooctane sulfonyl fluoride (PFOSE/POSF)
- Perfluorooctanesulfonic acid (PFOS)
- 2H,2H,3H,3H-Perfluoroundecanoic acid (PFUnA)
- Perfluorodecane sulfonic acid and salts (PFDS)/(L-PFDS)
- 1H,1H,2H,2H-Perfluorooctylacrylate (FTA 6-2)
- Perfluorooctane Sulfonamide (PFOSA)
- 1H,1H,2H,2H-Perfluorodecylacrylate (FTA 8-2)
- Perfluorobutyric Acid (PFBA)
- 1H,1H,2H,2H-Perfluorododecylacrylate (FTA 10-2)
- Perfluoropentanoic Acid (PFPA)
- 2-Perfluorobutylethanol (FTOH 4-2)

Perfluoro-n-hexanoic acid (PFHxA)  
2-Perfluorohexylethanol (FTOH 6-2)  
Perfluoro-n-heptanoic acid (PFHpA)  
2-Perfluorooctylethanol (FTOH 8-2)  
Perfluoro-n-octanoic acid (PFOA)  
2-Perfluorodecylethanol (FTOH 10-2)  
Perfluoro-n-nonanoic acid (PFNA)  
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)  
Perfluoro-n-decanoic acid (PFDA)  
2-(N-Ethylperfluoro-1-octanesulfonamido)-ethanol (N-EtFOSE)  
Perfluoroundecanoic Acid (PFUnA)  
N-Methylperfluoro-1-octanesulfonamide (N-MeFOSA)  
Perfluorododecanoic Acid (PFDoA)  
N-Ethylperfluoro-1-octanesulfonamide (N-EtFOSA)  
Perfluorotridecanoic Acid (PFTrA)  
1H,1H,2H,2H-Perfluorooctanesulphonic acid (H4PFOS 6-2)  
Perfluorotetradecanoic Acid (PFTeA)<sup>87</sup>

#### G-III APPAREL GROUP LTD.

**Corporate Headquarters:** 512 Seventh Avenue, New York, NY 10018

**CEO:** Morris Goldfarb

**Apparel Brands:** DKNY, Donna Karan, Andrew Marc, Marc New York, Vilebrequin, G.H. Bass, Eliza J, Jessica Howard, Black Rivet, Wilsons Leather

**Returned Survey:** No

**Identified PFAS Policy Public Communications:** Not publicly available

**PFAS Chemicals Included in Restricted Substance List:** Not available

#### GAP INC.

**Corporate Headquarters:** 2 Folsom Street, San Francisco, CA 94105

**CEO:** Sonia Syngal

**Apparel Brands:** Old Navy, Gap, Banana Republic, Athleta

**Returned Survey:** Yes

**Identified PFAS Policy Public Communications:**

Correspondence from Gap Inc. to NRDC, June 3, 2021:

Gap Inc. is committed to and is on track to eliminate all PFC-based DWR, stain repellent, and other PFC-based finishes from our supply chain by 2023 (our public commitment can be found here). This commitment builds on an existing prohibition on the use of long-chain PFCs. We have identified the fabrics with PFC-based finishes and maintain an



internal list of Acceptable Non-PFC-Based Finishes. Finishes on this list have evidence of certified conformance to the ZDHC Manufacturing Restricted Substances List (MRSL) and are not based on PFCs. We audit finished products for the presence of PFCs/PFASs using an accredited third-party testing laboratory, and we are exploring additional validation measures.

From GAP Inc. PFC Policy:

Long-chain perfluoroalkyl and polyfluoroalkyl chemicals (PFCs)—also referred to as long-chain per- and polyfluoroalkyl substances (PFASs)—are known to be hazardous to the environment due to their persistence and there is evidence that certain long-chain PFCs are toxic and harmful to human health. Since 2016, Gap Inc. has prohibited the use of long-chain PFCs in the production of Gap Inc. products.

Due to increasing awareness of potential environmental and ecological harm from short-chain PFCs, Gap Inc. is committed to eliminate all PFC-based DWR, stain repellent, and other finishes from our supply chain by January 2023 without jeopardizing product performance.<sup>88</sup>

Correspondence from Gap Inc. to NRDC, January 31, 2021:

“Gap Inc. is committed and on track to eliminate PFAS-based finishes from our supply chain. We do not consider PFAS-based membranes an acceptable alternative to such finishes. In addition, PFAS-based or PFAS-containing membranes (such as PTFE membranes) are not used by any of our brands.”

**PFAS Chemicals Included in Restricted Substance List:**

Aligned with AFIRM Restricted Substances List, which includes:

PFOS and related substances

PFOA and its salts

PFOA and related substances<sup>89</sup>

**JCPENNEY\***

**Corporate Headquarters:** 6501 Legacy Drive, Plano, TX 75024

**CEO:** Marc Rosen

**Returned Survey:** No

**Identified PFAS Policy Public Communications:**

JCPenney cares about the safety of our customers and the workers who make our products. We encourage our factories and mills to become OEKO-TEX® certified to ensure our fabrics are free of harmful chemicals. We are also working to implement new chemicals standards in the manufacturing process and encourage safer chemical alternatives through use of Zero Discharge of Hazardous Chemicals’ (ZDHC) Manufacturing Restricted Substances List (MRSL).<sup>90</sup>

\*As of 2020 owned by Simon Brookfield Properties

**PFAS Chemicals Included in Restricted Substance List:** None publicly available

## KEEN FOOTWEAR

**Corporate Headquarters:** 515 NW 13th Avenue, Portland, OR 97209

**CEO:** Rory Fuerst

**Returned Survey:** Yes

### **Identified PFAS Policy Public Communications:**

From Keen Footwear Website:

We actively ban all PFAS chemical compounds from our supply chain. We say our products are 97% PFC Free—because of the massive amount of environmental contamination (it’s in the bottom of the ocean, the clouds, and in the blood of polar bears!), there’s no way that we can guarantee being 100% PFC Free. We test for contamination regularly, and we consider this an endless journey of constant vigilance. ...We started identifying and intentionally removing PFASs from our supply chain starting in 2014. We removed 65% within the first year... It took us three more years to eliminate the rest. By 2018, we could confidently say we were PFC Free... Keen products produced before 2018 may have PFAS-based water repellency.<sup>91</sup>

### **PFAS Chemicals Included in Restricted Substance List:**

Perfluorinated and polyfluorinated chemical (PFC)–based water and soil repellents covered under voluntary chemical phaseout with the statement “KEEN is committed to using PFC-free water, soil, and oil treatments.”<sup>92</sup>

## L.L. BEAN

**Corporate Headquarters:** 15 Casco Street, Freeport, ME 04033

**CEO:** Stephen Smith

**Returned Survey:** Yes

### **Identified PFAS Policy Public Communications:**

Correspondence from L.L. Bean to NRDC February 3, 2021:

LLB has committed to 100% PFAS removal by 2026. We have no long-chain PFAS in any product. Our rugs, carpets, and cookware will be PFAS free by the end of this year. While we currently have our vendors test according to the AAFA RSL, we are creating a PFAS-specific testing protocol through Bureau Veritas to ensure our commitments are being met, which will be in place before the end of this year.

### **PFAS Chemicals Included in Restricted Substance List:**

Aligned with American Apparel & Footwear Association Restricted Substance List.

Restricted PFAS substances include:

PFOS

PFOA, its salts and esters\*

\*Additional PFAS are included in this list but are regulated as greenhouse gases, not as chemicals used in textile production.

**LEVI STRAUSS & CO.**

**Corporate Headquarters:** 1155 Battery Street, San Francisco, CA 94111

**CEO:** Charles V. Bergh

**Apparel Brands:** Levi's, Dockers, Denizen from Levi's, Signature by Levi Strauss & Co., Beyond Yoga

**Returned Survey:** Yes

**Identified PFAS Policy Public Communications:**

From Levi Strauss website:

Levi Strauss & Co. has banned the use of PFCs in our products and extended that ban to include all related PFAS, even though there are no comparable waterproof and stain-resistant alternatives.

“We banned the use of PFCs and PFAS for all Levi Strauss & Co. products because a growing body of science told us that it was the right thing to do for the environment—and the people who make and wear our products,” said Michael Kobori, our VP of Sustainability. “This decision was not taken lightly. We feel strongly that the health and safety of our consumers and the environment outweighs those performance benefits.”<sup>93</sup>

**PFAS Chemicals Included in Restricted Substance List:**

All PFAS, including but not limited to the following:

Perfluorooctanesulfonic acid (PFOS) and related substances

Perfluorooctanoic acid (PFOA), its salts, polymers, and related substances Perfluorohexanoic acid (PFHxA), its salts and related substances

Perfluorobutanesulfonic acid (PFBS) and related substances

Perfluorohexanesulfonic acid (PFHxS) and related substances

Perfluoroheptanesulfonic acid (PFHpS) and related substances

Perfluorodecane sulfonic acid (PFDS) and related substances Perfluorooctanesulfonamide (PFOSA) and related substances

Perfluorobutyric Acid (PFBA) and related substances

Perfluoropentanoic Acid (PFPA) and related substances

Perfluoroheptanoic acid (PFHpA) and related substances

Perfluorononanoic acid (PFNA) and related substances

Perfluorodecanoic acid (PFDA) and related substances

Perfluoroundecanoic acid (PFUnA) and related substances

Perfluorododecanoic acid (PFDoA) and related substances

Perfluorotridecanoic acid (PFTrA) and related substances

Perfluoro-3,7-dimethyloctanoic acid (PF-3,7-DMOA)

7H-Perfluoroheptanoic acid (HPFHpA)

1H,1H,2H,2H-Perfluorooctylacrylate (6:2 Fluorotelomer acrylate, 6:2 FTAC)

1H,1H,2H,2H-Perfluorodecylacrylate (8:2 Fluorotelomer acrylate, 8:2 FTAC)

1H,1H,2H,2H-Perfluorododecylacrylate (10:2 Fluorotelomer acrylate, 10:2 FTAC)

2-Perfluorobutylethanol (4:2 Fluorotelomer alcohol, 4:2 FTOH)

2-Perfluorohexylethanol (6:2 Fluorotelomer alcohol, 6:2 FTOH)

2-Perfluorooctylethanol (8:2 Fluorotelomer alcohol, 8:2 FTOH)

2-Perfluorodecylethanol (10:2 Fluorotelomer alcohol, 10:2 FTOH)  
2-(N-methylperfluoro-1-octanesulfonamido) -ethanol (MeFOSE)  
2H,2H-Perfluorodecanoic acid (8:2 Fluorotelomer carboxylic acid, 8:2 FTCA) 2H,2H,3H,3H-Perfluoroundecanoic acid (8:3 Fluorotelomer carboxylic acid, 8:3 FTCA)  
2H,2H,3H,3H-Perfluorooctanesulphonic acid (6:2 Fluorotelomer sulfonic acid, 6:2 FTSA)  
Perfluorotetradecanoic acid (PFTeA) and related substances  
2-(N-ethylperfluoro-1-octanesulfonamido) -ethanol (EtFOSE) Skin Sensitizers  
N-Methylperfluoro-1-octanesulfonamide (MeFOSA)  
N-Ethylperfluoro-1-octanesulfonamide (EtFOSA)<sup>94</sup>

## MACY'S, INC.

**Corporate Headquarters:** Seven West Seventh Street, Cincinnati, OH 45202-2424

**CEO:** Jeffrey Gennette

**Returned Survey:** No

**Identified PFAS Policy Public Communications:** Not available

**PFAS Chemicals Included in Restricted Substance List:** Not available (first restricted substances list to be developed and implemented in 2022)<sup>95</sup>

## NEW BALANCE

**Corporate Headquarters:** 100 Guest Street, Boston, MA 02135

**CEO:** Joe Preston

**Returned Survey:** Yes

### Identified PFAS Policy Public Communications:

From survey response:

New Balance eliminated PFAS chemicals from fashion apparel, sportswear, and outdoor gear.

New Balance still manufactures footwear products that use Gore-Tex materials. Gore-Tex membranes contain PTFE. PTFE is safe: insoluble and not volatile, very stable/does not degrade in the environment, however, upstream, PFCs of Environmental Concern are used as a polymerization aid to make PTFE. PTFE itself, however, is not a PFC of Environmental Concern. It enables unique performance and durability of Gore Fabrics products and why we extended an exemption for its use in NB Gore-Tex footwear.

### PFAS Chemicals Included in Restricted Substance List:

Perfluorooctanesulfonic acid (PFOS)

Perfluorooctanesulfonic acid, potassium salt (PFOS-K)

Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)

Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH<sub>4</sub>)

Perfluorooctane sulfonate diethanolamine salt (PFOSNH(OH)<sub>2</sub>)

Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOSN(C<sub>2</sub>H<sub>5</sub>)<sub>4</sub>)

N-Ethylperfluoro-1-octanesulfonamide (N-Et-FOSA)

N-Methylperfluoro-1-octanesulfonamide (N-Me-FOSA)  
2-(N-Ethylperfluoro-1-octanesulfonamido)-ethanol (N-Et-FOSE)  
2-(N-Methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)  
Perfluoro-1-octanesulfonyl fluoride (POSF)  
Perfluorooctane sulfonamide (PFOSA)  
Perfluorooctanoic acid (PFOA)  
Sodium perfluorooctanoate (PFOANa)  
Potassium perfluorooctanoate (PFOA-K)  
Silver perfluorooctanoate (PFOA-Ag)  
Perfluorooctanoyl fluoride (PFOA-F)  
Ammonium pentadecafluorooctanoate (APFO)  
1H, 1H, 2H, 2H-Perfluorodecanesulfonic acid  
Methyl perfluorooctanoate (MePFOA)  
Ethyl perfluorooctanoate (Et-PFOA)  
2-Perfluorooctylethanol (8:2 FTOH)  
1H, 1H, 2H, 2H-Perfluorodecyl acrylate (8:2 FTA)  
1H, 1H, 2H, 2H-Perfluorodecyl methacrylate (8:2 FTMA)<sup>96</sup>

## NIKE, INC.

**Corporate Headquarters:** One Bowerman Drive, Beaverton, OR 97005

**CEO:** John Donahoe

**Returned Survey:** No

### Identified PFAS Policy Public Communications:

From Nike website:

We're working toward a complete phase-out of PFC-based finishes by the end of 2021. . . . Since 2015, the use of any C8-based PFC has been banned in our products. Now we're eliminating all PFC-based finishes from our product line. We're doing this without sacrificing high durability, performance standards or aesthetics. . . . All PFC alternatives undergo our chemical assessment process to ensure that better chemistry is substituted into the supply chain. Achieving desired performance while scaling PFC-free innovation requires teamwork. We've put together a working group with representation from several disciplines that includes materials experts, quality teams, chemical suppliers, supplier facilities and print specialists so we can remove PFCs throughout our product line and supply chain.<sup>\*97</sup>

\*Note from authors: PFAS elimination goal does not appear to include PFAS membranes like Gore-Tex.

### PFAS Chemicals Included in Restricted Substance List:

Perfluorooctanesulfonic acid (PFOS)  
Perfluorooctanesulfonic acid, potassium salt (PFOS-K)  
Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)  
Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH<sub>4</sub>)  
Perfluorooctane sulfonate diethanolamine salt (PFOS-NH(OH)<sub>2</sub>)  
Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOS-N(C<sub>2</sub>H<sub>5</sub>)<sub>4</sub>)

N-Ethylperfluoro-1-octanesulfonamide (N-Et-FOSA)  
N-Methylperfluoro-1-octanesulfonamide (N-Me-FOSA)  
2-(N-Ethylperfluoro-1-octanesulfonamido)- ethanol (N-Et-FOSE)  
2-(N-Methylperfluoro-1-octanesulfonamido)- ethanol (N-Me-FOSE)  
Perfluoro-1-octanesulfonyl fluoride (POSF)  
Perfluorooctane sulfonamide (PFOSA)  
Perfluorooctanoic acid (PFOA)  
Sodium perfluorooctanoate (PFOA-Na)  
Potassium perfluorooctanoate (PFOA-K)  
Silver perfluorooctanoate (PFOA-Ag)  
Perfluorooctanoyl fluoride (PFOA-F)  
Ammonium pentadecafluorooctanoate (APFO)  
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)  
Methyl perfluorooctanoate (Me-PFOA)  
Ethyl perfluorooctanoate (Et-PFOA)  
2-Perfluorooctylethanol (8:2 FTOH)  
1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)  
1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)<sup>98</sup>

## NORDSTROM

**Corporate Headquarters:** 1700 Seventh Avenue, Seattle, WA 98101

**CEO:** Erik B. Nordstrom

**Returned Survey:** No

**Identified PFAS Policy Public Communications:** Not publicly available

### **PFAS Chemicals Included in Restricted Substance List:**

Nordstrom Product Group adopted the Restricted Substance Listed (RSL) as published by the American Apparel & Footwear Association (AAFA).<sup>99</sup> RSL standards apply to Mills, Dye Houses, Printworks, Finishing Facilities, Laundries and Tanneries; to the chemicals used within these facilities; and to the product they produce. Restricted PFAS substances include:

PFOS

PFOA, its salts and esters\*

\*Additional PFAS are included in this list but are regulated as greenhouse gases, not as chemicals used in textile production.

**PATAGONIA INC.**

**Corporate Headquarters:** 259 W Santa Clara Street, San Buenaventura, CA 93001

**CEO:** Ryan Gellert

**Apparel Brands:** Patagonia

**Returned Survey:** Yes

**Identified PFAS Policy Public Communications:**

From company website:

**Where We Are**

Fluorinated DWR finish is a functional chemical coating containing PFCs (Perfluorocarbons), that the outdoor industry has long relied on to make garments water-resistant. But they're non-biodegradable chemicals with an environmental cost. PFCs are extremely effective at repelling water, but because of their impacts, we are in the process of going PFAS-free\* (polyfluoroalkyl substances) across our entire product line by 2024.

From survey response:

Patagonia Works commitment to phase out PFAS chemicals from all products by 2024 does not exclude any chemicals included in the scientific definition of PFAS, "chemicals with at least one aliphatic perfluorocarbon moiety."<sup>100</sup>

**PFAS Chemicals Included in Restricted Substance List:**

Perfluorooctane sulfonic acid/Perfluorooctane sulfonate (PFOS)\*

Perfluorocarboxylic acid and salts

PFHxA

PFOA\*\*

Heptadecafluoro-1-iodooctane

1H,1H,2H,2H-Perfluorodecyl iodide\*\*

8:2 FTOH, Perfluorooctylethanol\*\*

Perfluorooctylethene\*\*

Perfluorooctylethyl acrylate or methacrylate\*\*

\*Ban on long-chain compounds in manufacturing based on long-chain electrofluorination chemistry (C6 and higher).

\*\*Ban on long-chain compounds in manufacturing based on long-chain telomer chemistry (C8 and higher).<sup>101</sup>

**PVH CORP.**

**Corporate Headquarters:** 200 Madison Avenue, New York, NY 10016

**CEO:** Stefan Larsson

**Apparel Brands:** Calvin Klein, Tommy Hilfiger, Warners, Olga by Warners, TRUE<sup>102</sup>

**Returned Survey:** Yes

### **Identified PFAS Policy Public Communications:**

From PVH PFAS Policy:

As a step towards advancing our chemicals ambition, PVH imposed a usage ban on all C8 and higher PFC compounds (commonly used for water and stain repellency) in 2020. Building on our ban of longchained PFCs, PVH has committed to the complete elimination of all PFAS-based compounds (including PFC-based) from our manufacturing process by 2024.<sup>103</sup>

### **PFAS Chemicals Included in Restricted Substance List:**

PVH has adopted the Apparel and Footwear International RSL Management Group's Restricted Substances List (AFIRM RSL). The AFIRM RSL applies to all products for all PVH brands including, but not limited to: apparel, components, footwear, packaging, trims, home goods, and accessories. Suppliers should contact their respective QA representative for information about testing. AFIRM RSL includes:

PFOS and related substances

PFOA and its salts

PFOA related substances<sup>104</sup>

## **RALPH LAUREN CORPORATION**

**Corporate Headquarters:** 650 Madison Avenue, New York, NY 10022

**CEO:** Patrice Louvet

**Apparel Brands:** Ralph Lauren Luxury, Polo Ralph Lauren, Lauren Ralph Lauren, Chaps<sup>105</sup>

**Returned Survey:** Yes

### **Identified PFAS Policy Public Communications:**

The Elimination of Per- and Polyfluoroalkyl Substances (PFASs)

RLC is committed to the elimination of Perfluorocarbons (PFCs), otherwise known as Per and Polyfluoroalkyl Substances (PFASs), a chemical substance group that includes PFOA, PFOS and other per- and polyfluorinated chemicals. RLC began phasing out the use of PFASs from product and material in FY20. PFASs are commonly used in the material treatment to achieve water resistance or repellency performance. If not managed correctly in production process, PFASs could be released to the environment through the effluent discharge from the manufacturing facility, as well as through product usage and end-of-life disposal and may lead to adverse impacts on people and the environment.

As the company works toward the elimination of PFASs from all RLC product with water resistance or repellency functionality, RLC have established a standardized chemical management procedure and PFASs testing requirement across all RLC brands. RLC's suppliers, licensees, and facilities are expected to comply with the following:

- The chemicals used to manufacture water repellent material must be certified PFASs-free;
- The manufacturing facility must ensure traceability of all chemicals used and processes involved in the water repellent material production;
- The material manufactured must pass PFASs testing as defined in RLC Testing Manuals to demonstrate the material is free of any traces of PFASs<sup>106</sup>

### **PFAS Chemicals Included in Restricted Substance List:**

Aligned with American Apparel & Footwear Association Restricted Substance List, May 2021, 22nd Edition



Restricted PFAS substances include:

PFOS

PFOA, its salts and esters\*

\*Additional PFAS are included in this list but are regulated as greenhouse gases, not as chemicals used in textile production.<sup>107</sup>

## REI\*

**Corporate Headquarters:** 6750 S 228th Street, Kent, WA 98032

**CEO:** Eric Artz

**Returned Survey:** No

### **Identified PFAS Policy Public Communications:**

From REI website:

**Durable Water Repellents (DWR):** Concerns about the toxicity and environmental persistence of certain durable water repellents is driving a transition in the industry. As of 2019 product lines, REI has eliminated DWR treatments that contain long-chain PFAS from our supply chain. We use short-chain PFAS alternatives where viable alternatives do not yet exist, and we continue to explore non-fluorinated alternatives, which we believe will eventually provide the best balance of performance and environmental stewardship.<sup>108</sup>

### **PFAS Chemicals Included in Restricted Substance List:**

Per- and polyfluoroalkyl substances (PFAS): REI prohibits the use of long-chain PFAS-based water repellent finishes, including finishes that contain PFOA and PFOS. Building upon this commitment, we avoid application of water repellent chemicals where they are not needed for a performance benefit and are exploring PFAS-free alternatives for apparel and gear.

Perfluorooctane sulfonic acid (PFOS) and its derivatives

Perfluorocarboxylic acids and its salts

Perfluorohexanoic acid (PFHxA) and its salts

Perfluorooctanoic acid (PFOA) and its salts

Perfluorooctanoic acid (PFOA) related substances\*\*

\*REI could have been classified as either a retailer or an outdoor apparel brand for the purposes of this report. We listed the company as an outdoor apparel brand because it is best recognized by consumers as such.

\*\*Detailed list of subcategories of substances on page 43 of citation 109

## SKECHERS

**Corporate Headquarters:** 225 S. Sepulveda Boulevard, Manhattan Beach, CA 90266

**CEO:** Robert Greenberg

**Returned Survey:** No

**Identified PFAS Policy Public Communications:** Not publicly available

**PFAS Chemicals Included in Restricted Substance List:** Not publicly available

## TAPESTRY, INC.

**Corporate Headquarters:** 10 Hudson Yards, FL 18, New York, NY 10001-2158

**CEO:** Joanne C. Crevoiserat

**Apparel Brands:** Coach, Kate Spade New York, Stuart Weitzman

**Returned Survey:** No

**PFAS Policy Public Communications:** Not publicly available

**PFAS Chemicals Included in Restricted Substance List:** Not publicly available.

## TARGET CORPORATION

**Corporate Headquarters:** 1000 Nicollet Mall, Minneapolis, MN 55403

**CEO:** Brian Cornell

**Returned Survey:** Yes

### **Identified PFAS Policy Public Communications:**

From company website: Improve textile products by removing added Perfluorinated Chemicals (PFC's) from products by 2022.

PFAS goals limited to "owned brand products." From company website: "For example, we just set a new goal that by 2025 we'll seek to remove intentionally added perfluorinated alkyl substances (PFAS) from owned brand products including but not limited to textiles, formulated, cosmetics, beauty and cookware items."<sup>110</sup>

From survey response: Target Corporation commitment does not exclude any chemicals included in the scientific definition of PFAS, "chemicals with at least one aliphatic perfluorocarbon moiety."

### **PFAS Chemicals Included in Restricted Substance List:**

Apparel: PFOA/PFOS (2018)

All items: Long Chain Perfluorinated Alkyl Compounds imported on or after September 25, 2020

## KOHL'S CORPORATION

**Corporate Headquarters:** N56 W17000 Ridgewood Drive, Menomonee Falls, WI 53051

**CEO:** Michelle Gass

**Returned Survey:** No

**Identified PFAS Policy Public Communications:** Not available

### **PFAS Chemicals Included in Restricted Substance List:**

PFOA and related substances and PFOS and its salts<sup>111</sup>

## UNDER ARMOUR

**Corporate Headquarters:** 1020 Hull Street, Baltimore, MD 21230

**CEO:** Patrik Frisk

**Returned Survey:** Yes

### Identified PFAS Policy Public Communications:

From survey response:

Under Armour is in the initial stage of evaluating where PFAS chemicals are used and if/when they can be eliminated. Once this evaluation is complete, a policy will be created which will include quantifiable goals and milestones for apparel, footwear and accessories when possible. UA currently follows the AFIRM RSL. Applicable products are required to be tested for PFOS and related substances as well as PFOA and its salts and related substances under the UA RSL program. Currently, UA also recommends suppliers adhere to the ZDHC MRSL although this is not yet required. As part of UA's chemical management program, all PFAS substances will be evaluated and added to the RSL as needed. A MRSL will also be required which may expand upon the ZDHC MRSL as needed. Lastly, a process will be developed for evaluating alternatives to prevent any regrettable substitutions. As previously stated, this work is just beginning and will evolve as UA progresses through the process.

### PFAS Chemicals Included in Restricted Substance List:

Aligned with AFIRM Restricted Substances List, which includes:

PFOS and related substances

PFOA and its salts

PFOA related substances<sup>112</sup>

## VF CORPORATION

**Corporate Headquarters:** 1551 Wewatta Street, Denver, CO 80202

**CEO:** Steven E. Rendle

**Brands:** The North Face, Timberland, Icebreaker, Smartwool, Altra, Vans, Kipling, Napapijri, Eastpak, JanSport, Eagle Creek, Dickies, Timberland Pro<sup>113</sup>

**Returned Survey:** Yes

### Identified PFAS Policy Public Communications:

From VF website:

Our goal is to eliminate and/or restrict 100% of unwanted chemicals or substances\*, using the innovative CHEM-IQSM program from VF's supply chain by 2025.

Classes of unwanted chemicals or substances – Azo dyes (Banned Amines), Disperse and other dyes (sensitizing), formaldehyde, NPEOs, PFASs, Restricted Phthalates, Chlorobenzenes and Chlorotoluenes, Chlorophenols, Flame Retardants, Halogenated Solvents, Organotin compounds, Polycyclic Aromatic Hydrocarbons (PAHs), Heavy metals, volatile organic compounds (VOCs).

How do we plan to do it? We are continuously expanding the CHEM-IQSM program and have committed that 100% of in-scope VF Tier 1 and nominated Tier 2 suppliers will be screened annually using the CHEMIQSM program. Learn more about the innovative CHEM-IQSM program here.<sup>114</sup>

From VF survey response:

OECD defines PFAS chemistry based on their molecular structures. Per- and Poly-Fluoroalkyl Substances are a class of chemicals that contain one or more perfluoroalkyl moieties, – CnF2n+1, and have diverse physical, chemical and

biological properties. They include non-polymeric (such as PFOA, PFOS) and polymeric substances (such as PTFE). In the past, PFASs were often referred to as “PFCs” (per- and polyfluorinated chemicals). VF has a goal to eliminate PFCs from our outerwear apparel since 2016 and we are committed to expanding this goal to include all product categories. We have already eliminated non-polymeric long-chain PFAS substances. While we explore technologies to further eliminate PTFE, for less than 1% of materials used across all VF products that contain polytetrafluoroethylene (PTFE), we are undertaking extensive training, education and are investing to use responsibly manufactured fluoropolymers.

From The North Face U.K. website

Where we’re headed: There is more progress to be made and we must work together. We continue to collaborate as part of the Outdoor Industry Association’s Chemical Management Working Group (CMWG), sharing best practices on responsible chemistry with other brands and in turn, learning from them, so that we can meet our goal of transitioning to 100% non-fluorinated DWR used on our apparel by 2020.<sup>115</sup>

#### **PFAS Chemicals Included in Restricted Substance List:**

Perfluorooctanesulfonic acid (PFOS)

Perfluorooctanesulfonic acid, potassium salt (PFOS-K)

Perfluorooctanesulfonic acid, lithium salt (PFOS-Li)

Perfluorooctanesulfonic acid, ammonium salt (PFOS-NH<sub>4</sub>)

Perfluorooctane sulfonate diethanolamine salt (PFOS-NH(OH)<sub>2</sub>)

Perfluorooctanesulfonic acid, tetraethylammonium salt (PFOS-N(C<sub>2</sub>H<sub>5</sub>)<sub>4</sub>)

N-Ethylperfluoro-1-octanesulfonamide (NEt-FOSA)

N-Methylperfluoro-1-octanesulfonamide (NMe-FOSA)

2-(N-Ethylperfluoro-1-octanesulfonamido)- ethanol (N-Et-FOSE)

2-(N-Methylperfluoro-1- octanesulfonamido)-ethanol (N-Me-FOSE)

Perfluoro-1-octanesulfonyl fluoride (POSF)

Perfluorooctane sulfonamide (PFOSA)

1-Decanaminium, N-decyl-N,N-dimethyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8- heptafluoro-1-octanesulfonic acid

Other salts or derivatives

Perfluorooctanoic acid (PFOA)

Sodium perfluorooctanoate (PFOA-Na)

Potassium perfluorooctanoate (PFOA-K)

Silver perfluorooctanoate (PFOA-Ag)

Perfluorooctanoyl fluoride (PFOA-F)

Ammonium pentafluorooctanoate (APFO)

Other PFOA salts

1H,1H,2H,2H -Perfluorodecane sulphonic acid

Methyl perfluorooctanoate (Me-PFOA)

Ethyl perfluorooctanoate (Et-PFOA)

2-Perfluorooctylethanol (8:2 FTOH)

1H,1H,2H,2H-Perfluorodecyl acrylate (8:2 FTA)

1H,1H,2H,2H-Perfluorodecyl methacrylate (8:2 FTMA)

Other PFOA related substances

Perfluorononanoic acid (PFNA, C9-PFCA)  
Nonadecafluorodecanoic acid (PFDA, C10-PFCA)  
Henicosafluoroundecanoic acid (PFUnDA, C11-PFCA)  
Tricosafluorododecanoic acid (PFDoDA, C12-PFCA)  
Pentacosafuorotridecanoic acid (PFTrDA, C13-PFCA)  
Heptacosafuorotetradecanoic acid (PFTDA, C14-PFCA)  
C9-C14 PFCA salts  
C9-C14 PFCA related substances  
Undecafluorohexanoic acid (PFHxA)  
PFHxA salts and related substances  
Various Perfluorohexane-1-sulfonic acid (PFHxS)  
PFHxS salts and related substances<sup>116</sup>

#### VICTORIA'S SECRET\*

**Corporate Headquarters:** 4 Limited Parkway, Reynoldsburg, OH 43068

**CEO:** Martin Waters

**Returned Survey:** No

**Identified PFAS Policy Public Communications:** “We have built a chemical management program aimed at eliminating the discharge of the following 14 priority chemical categories in conjunction with the manufacturing of our apparel products.”

Perfluorinated Chemicals, for function of Water Oil and Stain Repellents are included in this list. <sup>117</sup>

#### **PFAS Chemicals Included in Restricted Substance List:**

Oeko-Tex® 100 Standard  
PFOS, PFOSA, PFOSE, N-Me-FOSA, N-Et-FOSA, N-Me-FOSE, N-Et-FOSE  
PFOA and salts  
PFHpA  
PFNA  
PFDA  
PFUdA  
PFDoA  
PFTeDA  
Further Perfluorinated carboxylic acids  
Perfluorinated sulfonic acids  
Partially fluorinated carboxylic/sulfonic acids  
Partially fluorinated linear alcohols  
Esters of fluorinated alcohols  
PFOA related substances

\*Initial survey request was sent to former parent company L-Brands (no longer a corporate entity at time of report publication)<sup>118</sup>

## WALMART INC.

**Corporate Headquarters:** 702 SW Eighth Street, Bentonville, AR 72716

**CEO:** Doug McMillon

**Returned Survey:** No

**Identified PFAS Policy Public Communications:** Not available

**PFAS Chemicals Included in Restricted Substance List:** Not publicly available

## WOLVERINE WORLDWIDE

**Corporate Headquarters:** 9341 Courtland Drive NE, Rockford, MI 49351

**CEO:** Blake W. Krueger

**Brands:** Bates, Cat Footwear, Chaco, Harley-Davidson Footwear, Hush Puppies, HYTEST, Keds, Merrell, Saucony, Sperry, Stride Rite, Wolverine<sup>119</sup>

**Returned Survey:** No

**Identified PFAS Policy Public Communications:** Not available

**\*\*Note from authors:** Wolverine has issued numerous communications around its actions to clean up contamination originating from a company facility. However, we were not able to identify public policy communications around PFAS beyond the company's restricted substance list.

**PFAS Chemicals Included in Restricted Substance List:** PFOS, PFOA<sup>120</sup>

ENDNOTES

- 1 U.S. Environmental Protection Agency (hereinafter EPA), “PFAS Master List of PFAS Substances,” EPA CompTox Chemicals Dashboard, [https://comptox.epa.gov/dashboard/chemical\\_lists/PFASMASTER](https://comptox.epa.gov/dashboard/chemical_lists/PFASMASTER) (accessed April 1, 2022). David Q. Andrews and Olga V. Naidenko, “Population-Wide Exposure to Per- and Polyfluoroalkyl Substances From Drinking Water in the United States,” *Environmental Science and Technology Letters* 7, no. 12 (2020): 931–36, <https://doi.org/10.1021/acs.estlett.0c00713>. Hanna Joerres et al., “Transport of Legacy Perfluoroalkyl Substances and the Replacement Compound HFPO-DA Through the Atlantic Gateway to the Arctic Ocean—Is the Arctic a Sink or a Source?” *Environmental Science & Technology* 54, no. 16 (July 29, 2020): 9958–67, <https://doi.org/10.1021/acs.est.0c00228>. Ian T. Cousins et al., “The High Persistence of PFAS Is Sufficient for Their Management as a Chemical Class,” *Environmental Science: Processes & Impacts* 22, no. 12 (December 16, 2020): 2307–12, <https://doi.org/10.1039/D0EM00355G>. Adam C. Soloff et al., “Environmental Perfluorooctane Sulfonate Exposure Drives T Cell Activation in Bottlenose Dolphins,” *Journal of Applied Toxicology* 37, no. 9 (September 2017), <https://doi.org/10.1002/jat.3465>. Jacqueline T. Bangma et al., “Perfluoroalkyl Substances in Diamondback Terrapins (*Malacllemys terrapin*) in Coastal South Carolina,” *Chemosphere* 215 (January 2019): 305–12, doi: 10.1016/j.chemosphere.2018.10.023.
- 2 Agency for Toxic Substances and Disease Registry, U.S. National Toxicology Program, *Toxicological Profile for Perfluoroalkyls*, 2016, <https://www.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=1117&tid=237>. C8 Science Panel, “C8 Probable Link Reports,” [http://www.c8sciencepanel.org/prob\\_link.html](http://www.c8sciencepanel.org/prob_link.html) (accessed December 2, 2021). World Health Organization, International Agency for Research on Cancer, *Some Chemicals Used as Solvents and in Polymer Manufacture* (Lyon, France: IARC Publications, 2017), <https://publications.iarc.fr/Book-And-Report-Series/Iarc-Monographs-On-The-Identification-Of-Carcinogenic-Hazards-To-Humans/Some-Chemicals-Used-As-Solvents-And-In-Polymer-Manufacture-2016>. Vaughn Barry, Andrea Winquist, and Kyle Steenland, “Perfluorooctanoic Acid (PFOA) Exposures and Incident Cancers Among Adults Living Near a Chemical Plant,” *Environmental Health Perspectives* 121, no. 11–12 (January 2013): 1313–18, <https://doi.org/10.1289/ehp.1306615>. Suzanne E. Fenton et al., “Analysis of PFOA in Dosed CD-1 Mice. Part 2. Disposition of PFOA in Tissues and Fluids From Pregnant and Lactating Mice and Their Pups,” *Reproductive Toxicology* 27, no. 3–4 (June 2009): 365–72, <https://doi.org/10.1016/j.reprotox.2009.02.012>. Sally S. White et al., “Gestational and Chronic Low-Dose PFOA Exposures and Mammary Gland Growth and Differentiation in Three Generations of CD-1 Mice,” *Environmental Health Perspectives* 119, no. 8 (August 2011): 1070–76, <https://doi.org/10.1289/ehp.1002741>. Carolyn Beans, “How ‘Forever Chemicals’ Might Impair the Immune System,” *Proceedings of the National Academy of Sciences of the United States of America*, April 13, 2021, <https://www.pnas.org/content/118/15/e2105018118>. Maria H. Harris et al., “Prenatal and Childhood Exposure to Per- and Polyfluoroalkyl Substances (PFAS) and Child Executive Function and Behavioral Status-100 (accessed March 28, 2022).” *Environmental Research* 202 (November 2021), <https://doi.org/10.1016/j.envres.2021.111621>. Carol F. Kwiatkowski et al., “Scientific Basis for Managing PFAS as a Chemical Class,” *Environmental Science & Technology Letters* 7, no. 8 (August 11, 2020): 532–43, <https://doi.org/10.1021/acs.estlett.0c00255>.
- 3 EPA, “Fact Sheet: 2010/2015 PFOA Stewardship Program,” <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/fact-sheet-20102015-pfoa-stewardship-program> (accessed September 16, 2020).
- 4 Jack Wolfskin, “Goal Achieved: Our Clothes and All Items of Equipment Are Entirely PFC-Free,” <https://www.jack-wolfskin.com/information-pfc/> (accessed March 3, 2022). Polartec, “Polartec Announces Full Use of Non-PFAS DWR Treatments,” <https://www.polartec.com/news/polartec-announces-full-use-of-non-pfas-dwr-treatments> (accessed November 28, 2021). Houdini, “Sustainability Status: 100%,” <https://houdinisportswear.com/en-us/sustainability/sustainability-status-100> (accessed March 28, 2022). Vaude, “Waterproof without fluorocarbons,” [https://csr-report.vaude.com/gri-en/product/water-repellent-materials.php?\\_ga=2.208808530.1729007312.1648476926-184219091.1648476926](https://csr-report.vaude.com/gri-en/product/water-repellent-materials.php?_ga=2.208808530.1729007312.1648476926-184219091.1648476926) (accessed March 28, 2022).
- 5 Kwiatkowski et al., “Scientific Basis for Managing PFAS.”
- 6 EPA, “PFAS Master List.”
- 7 Carsten Lassen, Allan Astrup Jensen, and Marlies Warming, *Alternatives to Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) in Textiles*, Danish Ministry of the Environment, Environmental Protection Agency, no. 137, 2015, <https://www2.mst.dk/Udgiv/publications/2015/05/978-87-93352-16-2.pdf>.
- 8 Soloff et al., “Environmental Perfluorooctane Sulfonate Exposure.” Bangma et al., “Perfluoroalkyl Substances in Diamondback Terrapins.” Kwiatkowski et al., “Scientific Basis for Managing PFAS.”
- 9 EPA, “PFAS Master List.”
- 10 Manfred Santen, Madeleine Cobbing, and Kevin Brigden, “Hidden in Plain Sight: Poly-Fluorinated Chemicals (PFCs) in the Air of Outdoor Stores,” Greenpeace, July 2016, <https://www.greenpeace.org/international/publication/6907/hidden-in-plain-sight/>. Heidi Knutsen et al., “Leachate Emissions of Short- and Long-Chain Per- and Polyfluoroalkyl Substances (PFASs) From Various Norwegian Landfills,” *Environmental Science: Processes & Impacts* 21, no. 11 (November 1, 2019): 1970–79, <https://doi.org/10.1039/c9em00170k>. David A. Ellis et al., “The Use of 19F NMR and Mass Spectrometry for the Elucidation of Novel Fluorinated Acids and Atmospheric Fluoroacid Precursors Evolved in the Thermolysis of Fluoropolymers,” *Analyst* 128, no. 6 (June 2003): 756–64, <https://doi.org/10.1039/B212658C>. *Apparel* is defined in this report as indoor and outdoor clothing, accessories (items such as bags, belts, scarves, hats, and gloves), shoes, and textile-containing gear (including but not limited to sleeping bags, mats, and tents).
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