

FACT SHEET

TOXIC FASHION: REMOVE “FOREVER” PFAS CHEMICALS FROM OUR APPAREL

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Per- and polyfluoroalkyl substances, commonly known as PFAS, are a large family of an estimated 9,000 human-made chemicals.¹ In addition to being widely used in kitchen goods and cosmetics, they are applied to clothes, shoes, and accessories like purses and backpacks to make them more water and stain resistant while keeping the fabric breathable.² This use in apparel can expose us directly to PFAS through skin contact and accidental ingestion, as well as indirectly through the contamination of our environment.

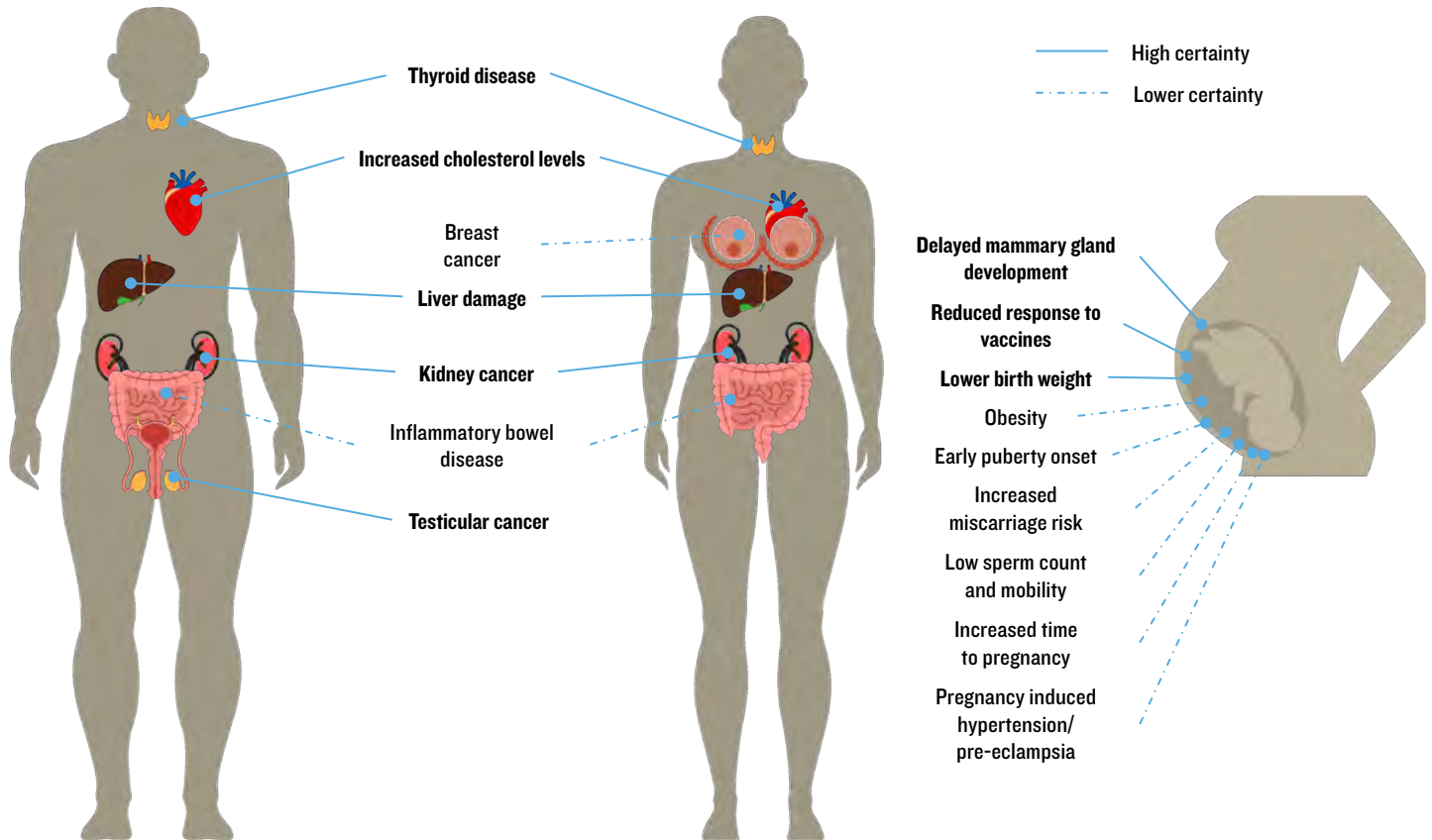
Studies have linked many PFAS chemicals to cancer, hormone disruption, liver and kidney damage, developmental and reproductive harm, and damage to the immune system (Figure 1). They can move quickly through water, air, and soil, making this dangerous contamination hard to control.³ The chemicals are also extremely resistant to breaking down and can build up in the environment and in our bodies.

Yet their wide use persists. A 2019 report published by the European Commission found that 20 percent of indoor and outdoor apparel products and 10 percent of sportswear and footwear products in Europe are coated in PFAS. The report also estimates that the European apparel industry uses between 19,800 and 30,200 tons of PFAS chemicals each year.⁴ While PFAS use in the U.S. textile industry

remains undisclosed, a 2018 study by the Commission for Environmental Cooperation, a government research collaboration among Canada, Mexico, and the United States, found PFAS chemicals in approximately 70 percent of the 137 articles of clothing it tested.⁵

Immediately banning all PFAS from apparel is an important step in reducing exposure to these hazardous chemicals.

FIGURE I: SELECTED HEALTH IMPACTS OF PFAS



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

“As a consequence of this persistence, as long as PFAS continue to be released to the environment, humans and other species will be exposed to ever greater concentrations of PFAS. Even if all releases of PFAS would cease tomorrow, they would continue to be present in the environment, and humans, for generations to come.”

—European Chemicals Agency⁶

COATING CLOTHES WITH PFAS CAN POLLUTE OUR DRINKING WATER

One of the biggest risks of applying PFAS to apparel is water contamination. Scientists estimate that at least 200 million Americans are drinking and cooking with water that may be contaminated with PFAS.⁷ Coating clothes with these substances contributes to this water pollution in several ways. Manufacturing facilities that make PFAS or apply these chemicals to apparel, for instance, can release these toxic chemicals into local waterways through emissions and industrial waste.⁸ 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 not equipped to filter out PFAS—and in the few treatment plants that do filter for PFAS, it results in solid PFAS waste that cannot be disposed safely. These solids are incinerated or sent to landfills from which runoff can contaminate nearby water bodies.

PFAS can also make its way into our drinking water sources through consumer use, when PFAS-coated apparel is washed or dry-cleaned.⁹ When discarded apparel ends up in a landfill, PFAS can leach into nearby groundwater and waterways.¹⁰ And PFAS released through air emissions during manufacturing, production, or incineration can also wind up in our water sources.¹¹

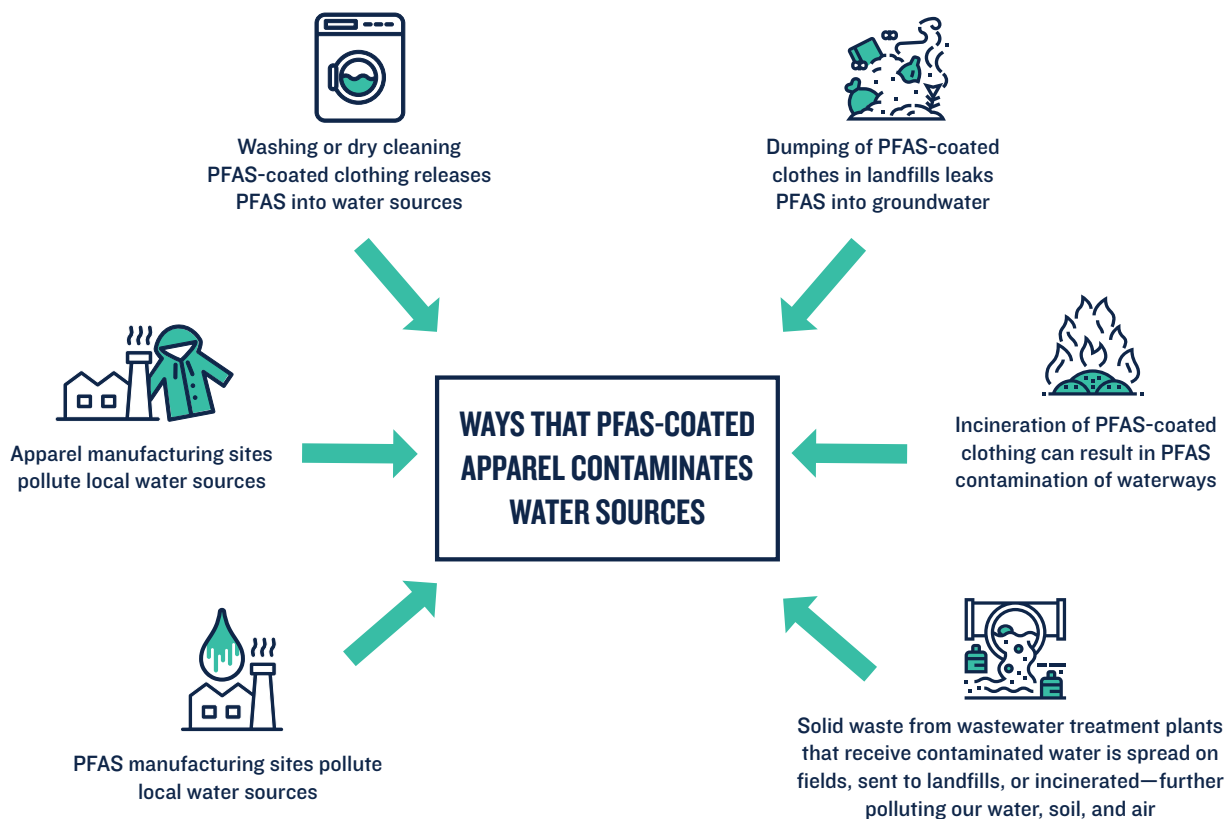
PFAS-COATED APPAREL SPREADS PFAS BEYOND OUR WATER SYSTEMS

PFAS used on apparel threatens public health in other ways as well. Workers can be exposed to dangerous levels of PFAS at chemical production sites and apparel-manufacturing facilities.¹² PFAS can be shed from treated clothing as it is worn and end up distributed throughout our homes, often carried by indoor dust that can coat carpets, furniture, and other surfaces. These chemicals then can be inhaled or ingested by young children crawling on carpets and putting their hands and other objects in their mouths.¹³ If PFAS-coated apparel is incinerated or dumped in a landfill, PFAS waste can pollute the air and soil and end up in the food chain, in addition to polluting water systems as noted above.¹⁴ Finally, studies suggest that some PFAS from apparel is absorbed by the skin, contributing to additional exposure.¹⁵

HOW THE APPAREL INDUSTRY CAN TURN OFF THE PFAS TAP

Because PFAS are extremely resistant to breaking down, the best way to combat PFAS pollution is to stop making and using these chemicals. The European Union is in the process of phasing out all nonessential uses of PFAS. Here in the United States, states are beginning to eliminate uses as well. For example, recent legislation enacted in Maine requires a phaseout of all nonessential uses of these chemicals, and numerous other states have banned or proposed bans on PFAS use in specific consumer products.

FIGURE 2: WAYS THAT PFAS-COATED APPAREL CAN POLLUTE OUR WATER SUPPLIES





However, those working to put these crucial regulations in place often encounter opposition and other time-consuming impediments, and we don't have any time to waste. In the face of regulatory delays, individual apparel companies can and should take immediate action to turn off the PFAS pollution tap. Some, including Levi's, Jack Wolfskin, H & M, and Mark & Spencer, have already ended their use of all PFAS. In most cases, these companies decided that water and stain resistance was not necessary or that they could achieve these properties by other means.

Apparel companies worldwide should follow suit and stop using PFAS in their clothes, shoes, and accessories.

Companies should communicate this commitment clearly to suppliers and adopt a testing regime at manufacturing sites to ensure that PFAS is fully out of their supply chains.

Consumers can help promote this change by refusing to buy apparel coated with PFAS. Because manufacturers are not required to indicate which of their products are coated with PFAS, consumers should research brands in advance, including by calling apparel companies for more information (and, at the same time, communicating to brands the importance of eliminating these chemicals fully from their shelves). Even those labels that do mention PFAS may be misleading, so consumers should educate themselves on what different labels mean (see the label guide below).

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 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 indicate presence of PFAS.	Ask the manufacturer if product contains any PFAS (including PTFE). 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 PTFE). 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 PTFE). If it does, avoid buying.
PFAS Free	This product could be PFAS free. Manufacturers, however, don't always include a specific type of PFAS called PTFE in their definition of PFAS, so the product may not actually be PFAS free.	Ask the manufacturer if product contains any PTFE. If it does, avoid buying.

ENDNOTES

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- 6 European Chemicals Agency, “Perfluoroalkyl Chemicals (PFAS),” <https://echa.europa.eu/hot-topics/perfluoroalkyl-chemicals-pfas> (accessed July 14, 2021).
- 7 David Q. Andrews and Olga V. Naidenko, “Population-Wide Exposure to Per- and Polyfluoroalkyl Substances From Drinking Water in the United States,” *Environmental Science & Technology Letters* 7, no. 12 (December 8, 2020): 931–36, <https://pubs.acs.org/doi/10.1021/acs.estlett.0c00713>.
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- 9 Munoz et al., “Furthering the Understanding of the Migration of Chemicals.”
- 10 Lohmann et al., “Are Fluoropolymers Really of Low Concern?”
- 11 Environmental Working Group, “Feeding the Waste Cycle: How PFAS ‘Disposal’ Perpetuates Contamination,” August 18, 2020, <https://www.ewg.org/news-insights/news/feeding-waste-cycle-how-pfas-disposal-perpetuates-contamination>.
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