
SENATE COMMITTEE ON ENVIRONMENTAL QUALITY

Senator Allen, Chair

2021 - 2022 Regular

Bill No: AB 1817
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Fiscal: No

SUBJECT: Product safety: textile articles: perfluoroalkyl and polyfluoroalkyl substances (PFAS)

DIGEST: Prohibits, beginning January 1, 2025 any person from manufacturing, distributing, selling, or offering for sale any textile articles that contain intentionally added per- and polyfluoroalkyl substances, except for textiles used for personal protective equipment or certain other regulated products. Requires manufacturers to use the least toxic alternative when complying with this prohibition and to provide distributors with certification of compliance.

ANALYSIS:

- 1) Requires, under the Safer Consumer Products statutes the Department of Toxic Substances Control (DTSC) to adopt regulations to establish a process to identify and prioritize chemicals or chemical ingredients in consumer products that may be considered chemicals of concern, as specified. (Health and Safety Code (HSC) § 25252)
- 2) Requires DTSC to adopt regulations to establish a process to evaluate chemicals of concern in consumer products, and their potential alternatives, to determine how to best limit exposure or to reduce the level of hazard posed by a chemical of concern. (HSC § 25253 (a))
- 3) Specifies, but does not limit, regulatory responses that DTSC can take following the completion of an alternatives analysis, ranging from no action, to a prohibition of the chemical in the product. (HSC § 25253)
- 4) Under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), requires the Governor to publish a list of chemicals known to cause cancer or reproductive toxicity and to annually revise the list. The Office of Environmental Health Hazard Assessment (OEHHA) has listed perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), which are members of the per- and polyfluoroalkyl substances (PFAS) class, as chemicals known to the state to cause developmental toxicity. (HSC § 25249.8)

- 5) Requires, commencing January 1, 2022, a person that sells firefighter personal protective equipment to provide a written notice to the purchaser if the firefighter personal protective equipment contains intentionally added PFAS chemicals. (HSC § 13029)
- 6) Prohibits, commencing January 1, 2022, a manufacturer of class B firefighting foam from manufacturing, or knowingly selling, offering for sale, distributing for sale, or distributing for use, and a person from using, class B firefighting foam containing intentionally added PFAS chemicals. (HSC § 13061)
- 7) Prohibits, on and after July 1, 2023, a person, including, but not limited to, a manufacturer, from selling or distributing in commerce in this state any new, not previously owned, juvenile product that contains regulated PFAS chemicals. (HSC § 108946)
- 8) Prohibits, commencing on January 1, 2023, a person from distributing, selling, or offering for sale in the state any food packaging that contains regulated PFAS. (HSC § 109000)
- 9) Authorizes the State Water Resources Control Board (State Water Board) to order a public water system to monitor for PFAS, requires community water systems to report detections, and where a detected level of these substances exceeds the response level, to take a water source out of use or provide a prescribed public notification. (HSC §116378)

This bill:

- 1) Defines for the purpose of this legislation:
 - a) “Apparel” as clothing items intended for regular wear or formal occasions or use in outdoor activities, excluding personal protective equipment or clothing items for exclusive use by the United States military;
 - b) “Personal protective equipment” as equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses that may result from contact with chemical, radiological, physical, biological, electrical, mechanical, or other workplace hazards;
 - c) “Perfluoroalkyl and polyfluoroalkyl substances” (PFAS) as fluorinated organic chemicals containing at least one fully fluorinated carbon atom;
 - d) “Regulated PFAS” as PFAS that a manufacturer has intentionally added to a product or that are intentional breakdown products of a product, or the

- presence of PFAS in a product or product component at or above 300 parts per billion, as measured in total organic fluorine;
- e) “Textile” as any item made in whole or part from a natural, manmade, or synthetic fiber, yarn or fabric including leather, cotton, silk, jute, hemp, wool, viscose, nylon, or polyester. “Textile” does not include disposable hygiene products made from tree or plant fiber, such as, toilet paper, paper towels, tissues, or disposable absorbent hygiene products; and
 - f) “Textile articles” as textile goods of a type customarily used in household and businesses including apparel, accessories, handbags, backpacks, draperies, shower curtains, furnishing, upholstery, beddings, towels, napkins, and tablecloths. “Textile articles” does not include:
 - i) Carpets and rugs;
 - ii) Treatments containing PFAS for use on converted textiles or leathers;
 - iii) Vehicles or their component parts;
 - iv) Filtration media and filter products used in industrial applications; and
 - v) Textile articles used in or for laboratory analysis and testing.
- 2) Prohibits the manufacturing, distribution, or selling in the state any textile articles that contain regulated PFAS after January 1, 2025.
 - 3) Requires manufacturers to use the least toxic alternative, including alternative design, when removing regulated PFAS in textile articles to comply with this prohibition.
 - 4) Requires manufacturers of products that will be prohibited by this bill to provide retailers and distributors a signed certificate of compliance stating that a textile article is in compliance with this prohibition.
 - 5) Specifies that a distributor or retailer shall not be in violation of this prohibition if they relied in good faith on the provided certificate and did not know, or should have known, that the textile article contains regulated PFAS.

Background

- 1) *Perfluoroalkyl and polyfluoroalkyl substances (PFAS)*. PFAS are a class of man-made chemical compounds that contain multiple fluorine atoms bonded to a single carbon atom. These carbon-fluorine bonds are extremely stable and chemically unreactive, which makes PFAS very useful in creating long-lasting and resistant products. As such PFAS have been produced and used in consumer products since the 1940s, often as surface coatings to repel water,

dirt, oil, and grease. They have been used in food packaging, stain- and water-repellent fabrics, nonstick products such as Teflon, and in fire-fighting foams.

Unfortunately, PFAS' stability also means that these compounds are resistant to being metabolized by organisms or otherwise degraded and so have slowly built up in the environment. Their chemical properties also make many PFAS highly mobile – able to travel long distances, move through soil, seep into groundwater, or be carried through the air far from their point of production or use. These factors combined with their widespread use have made PFAS so ubiquitous that almost every person on Earth has been exposed to PFAS and scientists have found these toxins in the blood of nearly all people tested.

- 2) *PFAS, don't you know that you're toxic?* Several PFAS have been shown to bioaccumulate significantly in animals or plants and emerging evidence points to their phytotoxicity, aquatic toxicity, and terrestrial ecotoxicity. The Agency for Toxic Substances and Disease Registry (ATSDR) and the US EPA developed the toxicologic profile of 14 PFAS chemicals. Based on a number of factors, including the consistency of findings across studies, the available epidemiology studies suggest associations between perfluoroalkyl exposure and several adverse health effects, including liver damage, increased risk of thyroid disease, decreased antibody response to vaccines, increased risk of asthma, risk of decreased fertility, and small decreases in birth weight.
- 3) *PFAS are a diverse class of chemical compounds.* Because PFAS have been so industrially useful, many different types of PFAS have been created. As of September 2020, more than 9,000 PFAS chemicals were included in the US EPA's Master List of PFAS Substances. Each one has variations in their chemical properties, but all share a resistance to chemical reactivity and to environmental and biological degradation. Perfluorooctanesulfonic acid (PFOS), used to create Teflon, and perfluorooctanoic acid (PFOA), previously used in Scotchgarde, have been the most extensively studied.

Because of extensive research demonstrating the health risks of these PFAS have been phased out of production and replaced with new PFAS touted as safer alternatives based on the idea that they linger for a shorter time in human bodies. Unfortunately, further research has shown that many of these alternatives are associated with similar adverse health effects as the original PFAS and can travel even more easily in the environment.

- 4) *To meaningfully regulate PFAS they must be treated as a chemical class.* Performing a complete assessment of the health impacts of all 9,000 PFAS is impractical. As such, DTSC has adopted a rationale for regulating PFAS

chemicals as a class, concluding, "It is both ineffective and impractical to regulate this complex class of chemicals with a piecemeal approach." This rationale was presented in the February, 2021, Environmental Health Perspectives article, "Regulating PFAS as a Chemical Class under the California Safer Consumer Products Program." The authors of the article state, "The widespread use, large number, and diverse chemical structures of PFAS pose challenges to any sufficiently protective regulation, emissions reduction, and remediation at contaminated sites. Regulating only a subset of PFAS has led to their replacement with other members of the class with similar hazards, that is, regrettable substitutions... Regulating PFAS as a class is thus logical, necessary, and forward-thinking."

- 5) *PFAS make textiles harder, better, faster, stronger.* A study commissioned by the European Commission Directorate-General for Environment found that PFAS have been used for a wide range of functional applications within textiles, upholstery, leather, apparel, and carpets in both the consumer and industrial segments. The study reports that water, oil, and dirt repellence were the primary functions for use of PFAS in textiles. Thermal resistance and 'breathability' were other uses of PFAS identified in certain types of clothing applications. According to industry representatives, PFAS are essential to the durability and functioning of many textiles designed to withstand harsh conditions or extended use, including personal protective equipment, some medical equipment, and extreme weather gear.
- 6) *Textiles are a major source of PFAS pollution.* According to the US EPA 2009 perfluorinated chemicals action plan, globally, coatings for textiles represent 50% of the total use of fluorotelomers, a broad class of PFAS that covers most PFAS used at large scale in industry. The US EPA is currently in the process of evaluating the PFAS content of wastewater from major industry sectors, including the textile industry.

DTSC states, "Most waste or end-of-life converted textiles or leathers in California are disposed of in landfills, where they become sources of PFASs to the environment via leachates and gaseous emissions. Wastewater treatment plants that collect landfill leachates, surface runoff, and residential and commercial wastewater do not effectively remove PFASs. As a result, when wastewater effluent is discharged into surface waters, PFASs are released into the environment, contaminating aquatic ecosystems and drinking water sources. Sewage sludge also contains PFASs, thus the application of biosolids on soil can contaminate terrestrial ecosystems, drinking water, and human food supplies. Carpets, rugs, upholstery, clothing, shoes, and other consumer products to which treatments containing PFASs have been applied become

major sources of exposure for infants and children via direct contact and incidental indoor dust ingestion."

- 7) *Alternatives to PFAS in textiles.* According to the Washington State Department of Ecology, there are a number of ways to meet the function of stain, oil, and water resistance in textiles and furnishings, including by using PFAS chemistries, non-PFAS "drop in" alternatives, or fibers that are inherently stain resistant. Non-PFAS "drop in" solutions include siloxane polymers, polyurethanes, sulfonation, and silicate clay-based repellent. Inherently stain resistant fibers include wool, polypropylene, polyethylene terephthalate, and polytrimethylene terephthalate. These alternatives require further study to ensure that there are no toxic impacts, and to consider their other environmental impacts, but they should not share the same exposure hazards as PFAS chemicals.

The Danish Environmental Protection Agency published a report in 2015 on alternative to PFAS that can be used to treat textiles to achieve similar effects. They list paraffin, stearic acid-melamine, silicone, dendrimer, and nano-material based repellent chemistries as currently used viable alternatives, though they do note these treatments only provide water resistance and not the oil and stain-resistance properties of PFAS.

While safer, less environmentally toxic alternatives to PFAS exist for many functions in textiles, many will not perform as well in all circumstances. In phasing out PFAS to protect the environment, a reduction in the performance of certain treated clothing will likely occur. As such this bill exempts critical classes of treated textiles where performance is essential to protecting human health in workplace, medical, and military settings.

Comments

- 1) According to the author, "Perfluoroalkyl and polyfluoroalkyl substances (PFAS) are a class of "forever" chemicals that are widely used, extremely persistent, and can lead to adverse health outcomes. While PFAS has been banned in a variety of consumer products, these chemicals are still utilized in textiles, including clothing, predominantly for stain and water repellency. The use of PFAS in textiles not only impacts the health of consumers, but contaminates our environment when PFAS-containing fabrics get washed. In California, water systems serving up to 16 million people have already been found to have PFAS contamination, and it is more prevalent in disadvantaged communities. California has already enacted a series of laws to protect consumers and the environment from the hazardous impacts of PFAS,

including AB 1200, which I championed and was signed into law just last year, prohibiting the use of PFAS in paper-based food packaging. These laws were passed on the premise that prevention is the best cure, and eliminating PFAS in consumer products is the best way to reduce the adverse health impacts of these chemicals on California residents. AB 1817 would extend this same logic to the textile industry by banning the sale of textiles that contain PFAS by 2025. By forcing manufactures to use safer alternatives, AB 1817 ensures California consumers and the environment are protected the toxic impacts of these forever chemicals.”

- 2) *Ensuring an absence of non-intentionally added PFAS in a product will be difficult for small manufacturers to achieve.* Given the mobility and longevity of PFAS, PFAS can be detected not just in human bodies, but across our environment. Given their ubiquity, complying with a prohibition of unintentionally added PFAS would require manufacturers to engage in testing of fluorine levels of component materials or finished products. Particularly difficult will be meeting the standard of PFAS concentrations of 300 parts per billion, because according to the opponents, there is only 1 state-certified testing facility capable of determining PFAS concentrations at such a low level. However in the future advances in testing technology should allow for ready detection of lower levels of PFAS. ***The committee may wish to amend the bill to modify the thresholds to align with existing targets of less than 100 parts per million of unintentionally added PFAS and then ramp down to 50 and then 10 ppm over time. The author may wish to consider continuing to work with industry groups to further refine this 10 ppm limit to ensure feasibility.***
- 3) *2 PFAS 2 furious!* While alternatives to PFAS in many textile products are available and being phased into the market, some textiles that require more durability and resistance than an average garment (such as outdoor gear for extreme weather) do not have such alternatives available. These industries require more time to research alternatives and test their efficacy, to ensure their products can maintain safe protections in harsh conditions. Moving too fast could force vendors to be stuck with unsellable products and force manufacturers out of the California market for several years until they are able to develop alternatives. ***The committee may wish to amend the bill to allow for the selling of PFAS-containing outdoor apparel for severe wet conditions until 2027, as long as such apparel is clearly labeled as containing PFAS.***
- 4) *#NotAllPFAS necessarily degrade into toxic byproducts.* The great hallmark of PFAS is their chemical stability which causes them to bioaccumulate. Certain specific PFAS are so stable that they do not meaningfully degrade on a biological timescale and so are used in a medical contexts. That being said,

even those classes of PFAS that are safe for medical use do pose an environmental risk even if they will not meaningfully degrade in a landfill. This is because productions of those types of PFAS requires extreme temperatures and chemical treatments that produce less stable PFAS that can spread into the environment. Furthermore, if long-lasting PFAS products are not reclaimed and reused by manufacturers then they will accumulate in landfills which creates its own set of environmental problems. This is especially true if the landfills utilize incineration, which can break down otherwise stable PFAS into its more mobile and dangerous components. Of course, the tradeoff between the environmental toxicity and utility of a heart valve is very different from that of a ski jacket, which is why this bill makes certain exemptions for important classes of products.

However, given the diversity of potential PFAS, it is feasible there could be individual PFAS that will be proven to not pose an environmental or health risk. In the future the Legislature may wish to consider directing DTSC to develop a process by which to exempt certain PFAS from prohibitions if manufacturers are able to provide sufficient evidence that the production, use, maintenance, disposal, and degradation will not lead to environmental or human health impacts, perhaps through an extended producer responsibility program.

- 6) *Out to sea.* Currently the bill exempts automobiles and other vehicles and their component parts from the provisions of the prohibition out of a recognition of the importance of PFAS treatments to the functioning of vehicles. A few opponents of the bill have pointed out that boats and other marine vessels similarly rely on PFAS in textiles and are even more reliant on the water-proofing features of PFAS materials. ***The committee may wish to amend the bill to exempt vessels and their component parts, including boat covers, from the prohibition.***
- 7) ***The committee may wish to consider technical and clarifying amendments.***
- 8) ***Staff recommends the committee adopt the bolded amendments contained in comments 2, 3, 6, and 7 above.***

Related/Prior Legislation

AB 2247 (Bloom) would require the DTSC to establish by January 1, 2025 a publicly accessible reporting platform to collect information about PFAS intentionally added to products or product components. This bill has been referred to the Senate Rules Committee.

AB 2271 (Friedman) would prohibit the manufacturing, selling, delivering or offering in commerce of any cosmetic product that contains intentionally added PFAS. This bill has been referred to the Senate Rules Committee.

AB 1200 (Ting, Chapter 503, Statutes of 2021) prohibits, commencing January 1, 2023, the sale of food packaging that contains PFAS; requires, commencing January 1, 2024, cookware manufacturers to label their product if it contains an intentionally added chemical on specified lists; and prohibits, commencing January 1, 2023, for the internet and January 1, 2024, for the cookware package, a cookware manufacturer from making a claim that cookware is free of a chemical, unless no chemical from that chemical class is intentionally added to the cookware.

AB 652 (Freidman, Chapter 500, Statutes of 2021) prohibits, on or after July 1, 2023, a person from selling or distributing in commerce any new juvenile products that contain PFAS.

SB 1044 (Allen, Chapter 308, Statutes of 2020) prohibits the manufacture, sale, distribution, and use of firefighting foam containing PFAS chemicals by January 1, 2022, with some exceptions, and requires notification of the presence of PFAS in the protective equipment of firefighters.

SB 1056 (Portantino, 2020) would have required the State Water Board to establish an analytical laboratory method that can be used as a tool to assess the extent of PFAS contamination in drinking water, surface water, groundwater, and wastewater. This bill was held in the Senate Environmental Quality Committee.

AB 756 (C. Garcia, Chapter 162, Statutes of 2019) authorizes the State Water Board to order one or more public water systems to monitor for PFAS and requires municipalities to notify consumers for PFAS detected above notification levels.

SOURCE: Breast Cancer Prevention Partners, Clean Water Action, and Natural Resources Defense Council

SUPPORT:

Active San Gabriel Valley
Alliance of Nurses for Healthy Environments
American College of Obstetricians and Gynecologists District IX
Bay Area Pollution Prevention Group
Breast Cancer Action

Breast Cancer Over Time
Breast Cancer Prevention Partners
Breathe Southern California
California Association of Sanitation Agencies
California Black Health Network
California Coastkeeper Alliance
California Municipal Utilities Association
California Product Stewardship Council
California Professional Firefighters
California Special Districts Association
Calpirg, California Public Interest Research Group
Cbu Productions
Center for Biological Diversity
Center for Community Action & Environmental Justice
Center for Oceanic Awareness, Research, and Education
Center for Public Environmental Oversight
Central California Asthma Collaborative
City of Oceanside Water Utilities Department
City of Santa Rosa
Clean and Healthy New York
Clean Label Project
Clean Production Action
Clean Water Action
Community Water Center
Consumer Federation of California
East Bay Municipal Utility District
Educate. Advocate.
Emphysema Foundation of America
Environmental Health Trust
Environmental Working Group
Erin Brockovich Foundation
Facts: Families Advocating for Chemical & Toxins Safety
Fashion Revolution USA
Fibershed
Friends Committee on Legislation of California
Friends of The Earth
Goodwill Industries of San Francisco, San Mateo and Marin Counties
Green America
Green Science Policy Institute
Heal the Bay
Integrated Resource Management
Leadership Counsel for Justice and Accountability
Los Angeles County Sanitation Districts
Made Safe

Metropolitan Water District of Southern California
National Association of Environmental Medicine (NAEM)
National Stewardship Action Council
Natural Resources Defense Council
Northern California Recycling Association
Orange County Water District
Physicians for Social Responsibility - Los Angeles
Plastic Oceans International
Plastic Pollution Coalition
Safer States
San Francisco Bay Physicians for Social Responsibility
San Francisco Baykeeper
Santa Clara Valley Water District
Save Our Shores
Save the Albatross Coalition
Seventh Generation Advisors
Sierra Club California
The 5 Gyres Institute
The Keep a Breast Foundation
Upstream
West County Wastewater
Wishtoyo Chumash Foundation
Women's Voices for The Earth
Worksafe
Zero Waste Sonoma
Zero Waste USA

OPPOSITION:

American Chemistry Council
American Forest & Paper Association
California Manufacturers & Technology Association
California Retailers Association
Juvenile Products Manufacturers Association
Kokatat INC.
Marine Recreation Association
National Council of Textile Organizations (NCTO)
National Marine Manufacturers Association
Outdoor Industry Association (OIA)
The Toy Association
W. L. Gore and Associates

ARGUMENTS IN SUPPORT: According to the sponsors of the bill, “PFAS are a class of approximately 9,000 man-made chemicals used for a wide range of

purposes, including in clothes and textiles. PFAS are called “forever chemicals” because they are extremely resistant to breaking down or break down into other toxic PFAS. Consequently, they persist in the environment indefinitely and bioaccumulate in our bodies and other living organisms. They also move around easily through the environment, making them difficult to control. Virtually all Americans have PFAS in their bodies. PFAS have been linked to severe health problems, including but not limited to breast and other cancers, hormone disruption, kidney and liver damage, thyroid disease, harm to developing infants and children, and immune system disruption. Indeed, health organizations such as the International Federation of Gynecology and Obstetrics, FIGO, have called for phasing out all unnecessary uses of PFAS.

“PFAS are released into the environment when products containing them, including clothes and textiles, are manufactured, used, cleaned, and disposed of. Californians are exposed to them when they work with PFAS or PFAS-containing products, use PFAS-containing products in their homes, drink PFAS contaminated water, eat PFAS-contaminated food, and breathe PFAS pollution in the air. The textile industry, which includes products like apparel, footwear, bedding, draperies, and upholstery, primarily uses PFAS for water and stain repellency. A particular concern regarding PFAS in clothing is the contamination that can occur when these products are washed and the wastewater is released into our environment. In California, water systems serving up to 16 million people have already been found to have PFAS contamination, and contamination is more prevalent in disadvantaged communities. This is just one of many ways in which clothing and textiles can lead to PFAS exposures throughout their lifecycle, from production to disposal.

“Recognizing the health and environmental concerns about PFAS in textiles, many leading companies, like Levi’s, Gap, H&M, Puma, Keen, Osprey, Patagonia, Jack Wolfskin, Ikea, and Zara, have either eliminated or made commitments to eliminate PFAS from their products. It’s time to require the rest of the industry to phase out this unnecessary use of PFAS, just as California has required the elimination of PFAS in paper-based food packaging, children’s products, and fire-fighting foam, to protect our health, drinking water, and environment.

“AB 1817 would address the problem and make the clothes and textiles that come into our homes and workplaces safer for our health and environment by phasing out the use of PFAS in these products. For these reasons, we strongly support AB 1817.”

ARGUMENTS IN OPPOSITION: According to the industry coalition opposed to the bill, “Our industries support the responsible production, use and

management of fluorinated substances, including regulatory requirements that are protective of human health and the environment. PFAS have varying physical and chemical properties and their environmental and health profiles are not all the same. It is important to consider this point when seeking to regulate a diverse set of products and articles.

“Given global supply chain constraints that have hit apparel retailers particularly hard, product availability for replacements is not assured and is likely to further exacerbate the economic impact on this sector. Additionally, a rigid compliance deadline without appropriate sell through provisions could have unintended consequences both from an economic and environmental perspective. Replacement of durable products, proven to provide long service life (years) with lower performing, much shorter lifetime (months) products will require consumers to replace those products more frequently, significantly increasing aggregated greenhouse gas (GHG) emissions output during production of the replacements. Unsold items may be disposed of in landfills or shipped to neighboring states for sale, incurring additional solid waste management, transportation and re-packaging material GHG impacts to the environment.

“At a minimum, the bill should include a bifurcated compliance timeline that recognizes varying product applications and performance needs and allows for existing inventory to be depleted.

“Recently added language establishing new certificate of compliance requirements exacerbates compliance challenges and further exposes regulated entities to legal liability. Product manufacturers already enter into contractual agreements with their suppliers that detail manufacturing specifications. Establishing this additional certification requirement is not needed. Additionally, while language was added that would absolve distributors and retailers from being in violation if they “relied in good faith” on a certificate of compliance, this relief is negated with the additional language specifying they did not act in good faith if they “know or should have known” the product contained regulated PFAS.

“Our coalition continues to be constructively engaged with the author and sponsors but at this time remain in an “Oppose Unless Amended” position.”

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