
SENATE COMMITTEE ON ENVIRONMENTAL QUALITY

Senator Allen, Chair

2021 - 2022 Regular

Bill No: AB 652
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Fiscal: No

SUBJECT: Product safety: juvenile products: chemicals: perfluoroalkyl and polyfluoroalkyl substances

DIGEST: This bill prohibits the sale and distribution of juvenile products that contain intentionally added perfluoroalkyl and polyfluoroalkyl substances (PFAS).

ANALYSIS:

Existing law:

- 1) Prohibits a person from selling or distributing in commerce any new juvenile products, mattresses, or upholstered furniture or any reupholstered furniture that contain, or a constituent components of which contains, covered flame retardant chemicals above specified levels. (Health and Safety Code (HSC) §19101)
- 2) Prohibits a manufacturer of class B firefighting foam from manufacturing, or knowingly selling, offering for sale, distributing for sale, or distributing for use in this state, and prohibits a person from using in this state, class B firefighting foam containing intentionally added PFAS chemicals. (HSC §13061-13062)
- 3) Prohibits the sale, manufacture or distribution in commerce of toys, child care articles or products that can be placed in a child's mouth that contain di-(2-ethylhexyl) phthalate, dibutyl phthalate, or benzyl butyl phthalate, as defined. (HSC §108937)
- 4) Prohibits the sale, manufacture, or distribution of a bottle or cup or a liquid, food or beverage in a can, jar, or plastic bottle that contains bisphenol A if the item is primarily intended for children three years of age or younger. (HSC §108940)
- 5) Prohibits the manufacture, sale and distribution of toys that are contaminated with any toxic substance. (HSC §108555)

- 6) Requires the Department of Toxic Substances Control (DTSC) to adopt regulations to establish a process to identify and prioritize chemicals and chemical ingredients that may be considered chemicals of concern, as specified. (HSC §25252)
 - a) Identifies, pursuant to regulation, chemicals that are candidates for the above-described process that exhibit a hazard trait and/or an environmental or toxicological end-point and meet certain criteria. (22 California Code of Regulations (C.C.R.) §69502.2)
 - b) Requires, pursuant to regulation, DTSC to consider various factors when identifying and implementing regulatory responses for priority products, such as public health and environmental protection. (22 C.C.R. §69506)
- 7) Requires DTSC to adopt regulations to establish a process to evaluate chemicals of concern and potential alternatives to those chemicals of concern to determine how to best limit exposure or to reduce the level of hazard posed by a chemical of concern and potential regulatory responses that DTSC may take after the alternatives analysis is completed. Specifies, but does not limit, regulatory responses that DTSC can take, ranging from no action, to a prohibition of the chemical in the product. (HSC §25253)

This bill:

- 1) Defines “juvenile product” to mean a product designed for use by infants and children under 12 years of age that:
 - a) Includes products such as pillows, mattresses, other sleeping products, pads, highchairs, mats, playpens, carriers, walkers, and strollers, as specified.
 - b) Does not include:
 - i) Children’s electronic products, as specified;
 - ii) Medical devices;
 - iii) Internal components of a juvenile product that would not come into direct contact with a child’s skin or mouth; and,
 - iv) Adult mattresses.
- 2) Defines “Perfluoroalkyl and polyfluoroalkyl substances” or “PFAS” to mean a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom.

- 3) Defines “intentionally added PFAS” to mean either the presence or use of PFAS in a product or product component that has a functional or technical effect, or the presence of PFAS at or above 100 parts per million in a product or product component, as measured in total organic fluorine.
- 8) Prohibits, on or 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 intentionally added PFAS chemicals.
- 9) Requires a manufacturer to use the least toxic alternative when replacing PFAS chemicals in a juvenile product.

Background

- 1) *Perfluoroalkyl and polyfluoroalkyl substances, also known as PFAS chemicals.* PFAS chemicals are a man-made class of chemicals that have been used widely in industrial and consumer product applications since the 1940s. Usually they are used as surface coatings and protectants due to their unique ability to repel water, dirt, oil and grease. As a result, PFAS chemicals can be found in consumer products including carpets, clothing, furniture upholstery, paper packaging for food, and other materials (e.g., cookware) that are designed to be waterproof, stain-resistant, or non-stick. They are also very stable, which makes them useful in manufacturing applications because they can withstand high heat and create durable products. What gives them their stability is their defining bond between carbon and fluorine, which is one of the strongest bonds known in organic chemistry. However, this stability also makes PFAS chemicals extremely difficult to break down. They are so persistent in the environment that they are sometimes referred to as “forever chemicals.”
 - a) *Types of PFAS.* As of September 2020, over 9,000 PFAS chemicals were included in the US EPA’s Master List of PFAS Substances, and there are likely more that are unknown. Due to the large number of chemicals included, PFAS chemicals have a wide range of chemical properties and uses. DTSC has divided PFAS Chemicals into four categories: perfluoroalkyl acids (PFAAs), PFAA precursors that can eventually degrade into PFAAs, perfluoropolyethers (PFPEs), and fluoropolymers.

PFAAs have been the most studied and regulated. They can be divided further into long-chain and short-chain PFAAs. Long-chain PFAAs include perfluorooctanesulfonic acid (PFOS), which was formerly used in Scotchgard™, and perfluorooctanoic acid (PFOA), which was used to

make Teflon. Both were discovered to be extremely persistent in the environment and cause significant health issues. As long-chain PFAAs have been phased out, short-chain PFAAs have been substituted in their place.

- 2) *Health impacts.* PFAS chemicals are persistent in the environment – meaning they don't break down – many also accumulate and persist in the human body, in protein-rich tissues such as blood, liver, brain, kidney, lung, and muscle. Several PFAS chemicals have been linked with several adverse health effects, including pregnancy-induced hypertension/pre-eclampsia, liver damage, increased cholesterol, increased risk of thyroid disease, decreased antibody response to vaccines, increased risk of asthma diagnosis, increased risk of decreased fertility, and small decreases in birth weight.

According to DTSC, children below the age of 12 are more susceptible to adverse health impacts from exposures to chemicals (like PFAS) than adults. Multiple studies have found significant associations between PFAS exposure and adverse immune outcomes in children. According to “Exposure to Perfluorinated Alkyl Substances and Health Outcomes in Children: A Systematic Review of the Epidemiologic Literature,” there is evidence for positive associations between prenatal and/or childhood exposure to PFAS and adverse health effects in children that include dyslipidemia (abnormally elevated cholesterol or fats in the blood), suppressed immune system response, impaired kidney function, and delayed onset of menstruation.

- 3) *Exposure.* The main route of exposure to PFAS is through ingestion, by eating or drinking contaminated food or liquid or swallowing contaminated household dust. Consumer products have been a significant source of exposure because PFAS is prevalent in many widely used products and can be released into household dust, air, and food. However, environmental exposure through air and drinking water has become an increasing concern due to the persistence and accumulation of PFAS chemicals like PFAAs in the environment. Groundwater contamination typically has been associated with industrial facilities where these chemicals were manufactured or used in products like firefighting foam, or in areas near landfills that accept items containing PFAS. Because of their presence and persistence in the environment, exposure to PFAS chemicals can continue decades after their release. Nationwide biomonitoring results indicate that nearly all Americans carry trace amounts of PFAS in their bodies.

Infants and toddlers may be particularly at risk because they have increased hand-to mouth behavior, they spend a significant amount of time spent

crawling and in close proximity to indoor dust sources, and they have a higher amount of skin relative to the size of their body, which can increase their potential exposures to chemicals in consumer products.

- 4) *Actions limiting PFAS.* Concerns around PFAS chemicals first gained traction around 1998, following a lawsuit against DuPont, which ultimately revealed that the company, who produced PFOA, concealed decades' worth of internal research that linked PFOA to negative health effects. It was later revealed that similar corporate disinformation occurred with PFOS at the chemical company 3M. Since then, the use of PFAS has been more thoroughly scrutinized. However, regulatory action has moved slowly.
 - a) *Voluntary phase-out of PFOS and PFOA.* Between 2000 and 2002, PFOS was voluntarily phased-out of production in the US by its primary manufacturer, 3M. Beginning in 2006 other manufacturers began to voluntarily limit the number of ongoing uses of PFOA as part of the US EPA's PFOA Stewardship Program. According to the Centers for Disease Control and Prevention's (CDC) National Health and Nutrition Examination Survey (NHANES), blood levels of PFOA and PFOS declined by more than 60% and 80%, respectively, from 1999 to 2014, likely as a result of this phase out.
 - b) *Federal response.* In May 2016, the US EPA issued a lifetime health advisory for PFOS and PFOA for drinking water, advising municipalities that they should notify their customers of the presence of combined PFOS and PFOA levels over 70 parts per trillion (ppt) in community water supplies. The US EPA's health advisories provide technical information to states' agencies and other public health officials, however they are non-enforceable, and non-regulatory. In 2019, the US EPA released their formal PFAS Action Plan describing long- and short-term actions planned to evaluate whether and how to regulate PFAS under various federal programs, but does not set forth any regulatory measures. The US EPA is currently working to establish maximum contaminant levels (MCLs), health-protective drinking water standards to be met by public water systems, under the Safe Drinking Water Act (SDWA) for PFAS, and to designate PFAS chemicals as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The US EPA is also reviewing a Toxicity Assessment for PFAS.
 - c) *State regulatory action.* Under DTSC's Safer Consumer Products (SCP) Program, all PFAS chemicals are Candidate Chemicals, and carpets, rugs,

plant-based food packaging, and treatments for leather and textiles containing PFAS are all proposed Priority Products. A Priority Product is a consumer product identified by DTSC that contains one or more Candidate Chemicals that have a hazard trait that can harm people or the environment. Additionally, DTSC included PFAS in food packaging as part of their 2018-2020 Priority Product Work Plan and have proposed investigating children's products in their Draft Priority Product Work Plan for 2021-2023. For this purpose, DTSC has defined children's products in accordance with the definition set forth by the Washington State Legislature (RCW 70A.430.010). This includes toys; children's cosmetics; children's jewelry; any product designed or intended by the manufacturer to help a child with sucking or teething; to facilitate sleep, relaxation, or the feeding of a child; and children's car seats.

Under Proposition 65, The Office of Environmental Health Hazard Assessment (OEHHA) listed PFOA and PFOS as chemicals known to the state to cause reproductive toxicity. At the request of the State Water Resources Control Board (State Water Board), OEHHA is in the process of establishing public health goals, concentrations of contaminants in drinking water that pose no significant acute or chronic health risks, for PFOS and PFOA. The State Water Board has also requested that OEHHA evaluate whether some PFAS chemicals should be grouped together for regulatory purposes.

- 5) *Regulating PFAS as a class.* The policy of regulating PFAS chemicals as a class has been contested among industry, regulators, and scientists. Following the publication of several papers arguing for the scientific basis for managing PFAS as a chemical class, industry researchers published a comment in the scientific journal *Environmental Science & Technology Letters*, suggesting, "Before a class-based approach for PFAS...is adopted, the process should follow the well-justified path of previous regulatory actions and rely on an extensive scientific evaluation of each PFAS subgroup and compounds within."

DTSC scientists acknowledge that there are many different types of PFAS chemicals, but despite the differences between them, DTSC has adopted the rationale for treating them as a class. In an article entitled "Regulating PFAS as a Chemical Class under the California Safer Consumer Products Program" published in *Environmental Health Perspectives* in February 2021, DTSC scientists argue, "Based on the currently available science, we have concluded that it is both ineffective and impractical to regulate this complex class of chemicals with a piecemeal approach...In the case of PFAS, we believe that all

members of the class have a potential for significant and widespread adverse impacts due to their extremely high environmental persistence, coupled with growing evidence for human and ecological health hazards for impurities, metabolites and degradation products of the subset commonly used in consumer products.”

- 6) *Non-essential use.* PFAS chemicals are used in children’s products as a surface coating to make products water and dirt resistant. In a review paper of the use of PFAS in 2019 called *The concept of essential use for determining when uses of PFASs can be phased out*, scientists characterized PFAS as a surface coating for easy cleanup “non-essential” and suggested banning PFAS chemicals for this purpose, regardless of if substitutes were available.

Comments

- 1) *Purpose of Bill.* According to the author, “PFAS chemicals have been shown to have adverse impacts on human health, including children, and this includes suppression of the immune system, hormonal disruption, and possibly cancer. AB 652 would prohibit the inclusion of PFAS chemicals in a wide range of juvenile products such as sleep mats, nursing pillows, car seats, and crib mattresses. The chemicals are used in order to market the products as being “stain and water resistant,” however, these products shed the PFAS chemicals over time and expose children (and pets and adults for that matter) to the chemicals. Since the PFAS chemicals are not essential for the functioning of these products, children are exposed to these chemicals for little reason. AB 652 will reduce the cumulative exposure of children to PFAS by prohibiting those chemicals in a number of children-oriented products.

“Opponents to AB 652 may argue that this bill is unnecessary because we have DTSC’s Safer Consumer Product Program to relieve the Legislature of handling chemical/toxics issues such as this. While that program is doing good work, it is proceeding at an exceedingly slow pace. We could wait another decade before they might get to the issue of PFAS in these juvenile products. Meanwhile, our children are being exposed to unseen, tiny amounts of a chemical that will stay in their bodies for years and the evidence is mounting that they cause a host of serious health issues.

“I want to emphasize that DTSC has already made findings about the use of PFAS in consumer products in two Priority Product profiles, for carpets and rugs and for plant-based food packaging. They lay out the science that confirms that these chemicals are a threat to the health of Californians and must be removed or substituted with safer alternatives. They also show why

PFAS chemicals must be considered as a class of chemicals and not regulated on an individual chemical basis. The same science and conclusions clearly apply to the use of PFAS in the consumer products included in AB 652.”

- 2) *Similar approach to previous legislation.* AB 2998 (Bloom, Chapter 924, Statutes of 2018) banned the use of flame retardant chemicals in the same juvenile products proposed in AB 652. The basis for the bill was nearly identical – health concerns, particularly to children, from inhaling or ingesting migrating particles from these products and their use being deemed “non-essential.” Since the Green Chemistry program (later SCP) was first established at DTSC in 2008, AB 2998, and other bills such as AB 1319 (Butler, Chapter 467, Statutes of 2011) banning BPA in toddler sippy cups and bottles and AB 929 (Pavley, Chapter 313, Statutes of 2010) banning jewelry with up to a certain level of cadmium, have bypassed DTSC’s regulatory action to ensure a speedier response to these harmful chemicals. DTSC, in fact, wrote in support of AB 1319 (Butler) stating, "DTSC does not believe that the regulations should ever be viewed as excluding action that the Legislature might take to address specific product related concerns that are brought to its attention."
- 3) *Avoiding regrettable substitutions.* While it can be argued that these chemical coatings to make juvenile products more durable are non-essential, it is a feature that most consumers desire, especially on juvenile products. Therefore, if PFAS is banned, industry will likely look for a substitute to achieve the same effect.

One of the reasons why PFAS is treated as a class is because if one chemical is banned, it could just be replaced by one that is chemically similar and has the same health impacts. For example, this happened when bisphenol A (BPA) was banned in beverage containers under AB 1319 (Butler, 2011), but did not prohibit manufacturers for replacing it with bisphenol S or bisphenol F, which appear to exhibit the same endocrine-disrupting behavior.

It is essential that when toxic or potentially harmful chemicals are phased out of products, they are not simply replaced by another harmful type of chemical. AB 652 includes a provision that requires a manufacturer to use the least toxic alternative when replacing PFAS chemicals in a juvenile product. However, it remains unclear what the best alternatives are.

Other jurisdictions have begun the work of finding PFAS alternatives for a variety of products. For example, several European countries have taken steps to restrict PFAS compounds under Europe’s chemical regulations framework,

and in 2015, the Danish Environmental Protection Agency published a report called *Alternatives to perfluoroalkyl and polyfluoro-alkyl substances (PFAS) in textiles*. This report details several non-fluorinated chemistries as potential alternatives to PFAS for achieving water, oil, and dirt repellency in fabrics: Paraffin repellent chemistries, stearic acid-melamine repellent chemistries, silicone repellent chemistries, dendrimer based repellent chemistries, and nano-material based repellent chemistries. Furthermore, the Organisation for Economic Co-operation and Development (OECD), an intergovernmental economic organization with 38 member countries, is working to exchange information on PFAS, with the objective to support a global transition towards safer alternatives.

- 4) *Clarifying definition of intentionally added PFAS*. The current definition of “intentionally added” PFAS in the bills is either of the following:

- (1) The presence or use of PFAS in a product or product component that has a functional or technical effect in the product or product component.*
- (2) The presence of PFAS in a product or product component at or above 100 parts per million, as measured in total organic fluorine.*

While this definition is consistent with CalRecycle’s proposed state regulations on PFAS for the Sustainable Packing Act of 2018 (14 C.C.R. §17989.2), opposition has raised questions about the word “intentionally-added” along with the use of the word “presence,” which may lead to some confusion.

To further clarify this definition, the committee may wish to consider amending the bill to change “intentionally-added” to “prohibited” and make part (1) of the definition consistent with the definition of “intentionally added ingredient” from AB 258 (Lara, Chapter 830, Statutes of 2017).

Related/Prior Legislation

AB 1200 (Ting, 2021) would, among other things, prohibit the sale of food packaging that contains intentionally added. AB 1200 is before the Senate Environmental Quality Committee.

SB 502 (Allen, 2021) would update and reform California's Green Chemistry program, including creating a streamlined alternatives analysis process and requiring manufacturers to provide data on a consumer product's ingredients to DTSC upon request, among other things. SB 502 was moved to the Senate Inactive File.

SB 1044 (Allen, Chapter 308, Statutes of 2020) prohibits the manufacture, sale, distribution, and use of firefighting foam containing PFAS chemicals, 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. SB 1056 was held in the Senate Environmental Quality Committee.

SOURCE: Environmental Working Group

SUPPORT:

Alliance of Nurses for Healthy Environments
American Academy of Pediatrics, California
American College of Obstetricians and Gynecologists District IX
Bay Area Pollution Prevention Group
Breast Cancer Prevention Partners
California Municipal Utilities Association
California Product Stewardship Council
California Water Association
Calpirg
Center for Environmental Health
Center for Food Safety; the
Center for Public Environmental Oversight
Children Now
Clean Water Action
Consumer Federation of California
Earthjustice
Environment California
Environmental Working Group
Facts: Families Advocating for Chemical & Toxins Safety
Friends Committee on Legislation of California
Los Angeles County Sanitation Districts
National Stewardship Action Council
Orange County Water District
Physicians for Social Responsibility - San Francisco Bay Area Chapter
Regional Water Authority
S.f. Bay Physicians for Social Responsibility
Safer States
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Santa Clara Valley Water District
Seventh Generation Advisors

OPPOSITION:

American Chemistry Council
Auto Care Association
California Chamber of Commerce
California Manufacturers & Technology Association
Cawa
Chemical Industry Council of California
Juvenile Products Manufacturers Association
The Toy Association

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