Date of Hearing: April 8, 2025

ASSEMBLY COMMITTEE ON ENVIRONMENTAL SAFETY AND TOXIC MATERIALS
Damon Connolly, Chair
AB 1148 (Sharp-Collins) – As Amended March 28, 2025

SUBJECT: Food packaging: hazardous chemicals

SUMMARY: Prohibits, on and after January 1, 2027, a person from distributing, selling, or offering for sale food packaging that contains intentionally added antimony trioxide, bisphenols, or ortho-phtalates, as specified, and authorizes the Department of Toxic Substances Control (DTSC) to regulate and enforce the prohibition. Specifically, **this bill**:

1) Proclaims that the provisions of this bill will be known as the "Safer Food Packing Act of 2025."

2) Defines "bisphenol" as a chemical with two phenol rings connected by a single linker atom. Specifies that the linker atom and phenol rings may have additional substituents.

    a) Exempts tetramethyl bisphenol F (TMBPF), as defined, from the definition of "bisphenol."

3) Defines "food packaging" as a nondurable package, packaging component, or food service ware that is intended to contain, serve, store, handle, protect, or market food, foodstuffs, or beverages.

    a) Specifies that "food packaging" includes food or beverage containers, take-out food containers, unit product boxes, liners, wrappers, serving vessels, eating utensils, straws, food boxes, and disposable plates, bowls, or trays.

4) Defines "ortho-phthalates" as a class of chemicals that are esters of ortho-phthalic acid.

5) Prohibits, on and after January 1, 2027, a person from distributing, selling, or offering for sale in the state any food packaging that contains intentionally added antimony trioxide, bisphenols, or ortho-phtalates at or above a limit determined by DTSC in regulation.

6) Authorizes DTSC to adopt regulations to implement, enforce, interpret, or make specific the provisions of this bill.

7) Authorizes DTSC to, by regulation, establish standards for use of antimony trioxide, bisphenols, and ortho-phtalates in food packaging that are more protective of public health, sensitive populations, or the environment than the standards originally established by DTSC.

8) Authorizes DTSC, if it determines that TMBPF poses a significant risk to human health, to, by regulation, limit or prohibit the distribution, sale, or offering for sale in the state any food packaging that contains TMBPF.

9) Provides that if DTSC adopts a regulatory response under its Safer Consumer Products program regarding the use of any form of antimony trioxide, bisphenol, or ortho-phthalate in

a product that is prohibited by the provisions of this bill and DTSC has posted a notice on its internet website that it has adopted the regulatory response, then the provisions of this bill shall not apply to that product.

10) Provides that the provisions of this bill shall not be construed to prohibit or restrict the authority of DTSC under its Safer Consumer Products program to prioritize or take action on a product containing any form of antimony trioxide, bisphenol, or ortho-phthalate, in order to limit exposure to or reduce the level of hazard posed by any form of antimony trioxide, bisphenol, or ortho-phthalate.

11) Authorizes DTSC or the Attorney General to enforce the provisions of this bill.

12) Requires that a person in violation of the provisions of this bill be liable for an administrative or civil penalty not to exceed $5,000 for the first violation and not to exceed $10,000 for each subsequent violation.

13) Authorizes penalties to be assessed for each violation or, for continuing violations, for each day that a violation continues.

14) Requires that a prevailing party be entitled to an award of reasonable attorney's fees and costs.

15) Provides that the provisions of this bill do not impair or impede any other rights, causes of action, claims, or defenses available under any other law.

16) Provides that the remedies provided in this bill are cumulative with any other remedies available under any other law.

17) Authorizes, upon appropriation by the Legislature, funds in the Toxic Substances Control Account to be used by DTSC to implement the provisions of this bill.

EXISTING LAW:

1) Defines "person" as any person, firm, association, organization, partnership, business trust, corporation, limited liability company, or company. (Health and Safety Code (HSC) § 19)

2) Defines "bisphenol," as it relates to a juvenile's feeding product or juvenile's sucking or teething product, as a chemical with two phenol rings connected by a single linker atom. Specifies that the linker atom and phenol rings may have additional substituents. (HSC § 108942) (Note: This definition is identical to the definition in AB 1148).

3) Defines "ortho-phthalates" as a class of chemicals that are esters of ortho-phthalic acid, including specified chemicals. (HSC § 109051) (Note: This definition is identical to the definition in AB 1148, except AB 1148 does not list specific chemicals included in the definition).

4) Prohibits the manufacture or sale of any toy that is contaminated with specified toxic substances, including soluble compounds of antimony, as specified. Requires DTSC and local health officers to enforce this prohibition. (HSC § 108555)

5) Prohibits, commencing January 1, 2009, the manufacture or sale of any toy or child care article that contains di-(2-ethylhexyl) phthalate (DEHP), dibutyl phthalate (DBP), or benzyl butyl phthalate (BBP), in concentrations exceeding 0.1 %. (HSC § 108937 (a))

6) Prohibits, commencing January 1, 2009, the manufacture or sale of any toy or child care article intended for use by a child under three years of age if that product can be placed in the child's mouth and contains diisononyl phthalate (DINP), diisodecyl phthalate (DIDP), or di-n-octyl phthalate (DnOP), in concentrations exceeding 0.1 %. (HSC § 108937 (b))

7) Prohibits, on or after January 1, 2026, the manufacture or sale of any juvenile's feeding, sucking, or teething product that contains any form of bisphenol above the practical quantitation limit determined by DTSC (HSC § 108940 (a)); authorizes DTSC or the Attorney General to enforce this prohibition (HSC § 108940 (f)(1)); and authorizes DTSC to adopt regulations to implement, enforce, interpret, or make specific this prohibition. (HSC § 108940 (g))

8) Prohibits, beginning January 1, 2023, the sale of any food packaging that contains regulated perfluoroalkyl and polyfluoroalkyl substances (PFAS). (HSC § 109000)

9) Prohibits, beginning January 1, 2025, the manufacture or sale of a cosmetic product containing specified intentionally added ingredients, including several phthalates. (HSC § 108980(a)(6))

10) Prohibits, beginning January 1, 2030, the manufacture or sale of intravenous (IV) solution containers made with intentionally added DEHP. Additionally prohibits, beginning January 1, 2035, the manufacture or sale of IV tubing made with intentionally added DEHP. (HSC § 109052)

Under the California Environmental Contaminant Biomonitoring Program:

1) Requires the California Department of Public Health (CDPH), in collaboration with the California Environmental Protection Agency, to establish the California Environmental Contaminant Biomonitoring Program. Requires CDPH to utilize biological specimens, as appropriate, to identify designated chemicals that are present in the bodies of Californians. (HSC § 105441)

2) Defines "designated chemicals" as those chemicals that are known to, or strongly suspected of, adversely impacting human health or development, based upon scientific, peer-reviewed animal, human, or in vitro studies, and according to certain parameters. (HSC § 105440 (c)) (Note: The California Environmental Contaminant Biomonitoring Program includes the bisphenol and ortho-phthalate chemical groups, as well as antimony (antimony trioxide is a compound of antimony), on its list of designated chemicals).

Under the Safer Consumer Products Program:

1) Requires 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. (HSC § 25252) (Note: The Safer Consumer Product's Candidate

Chemicals List includes the bisphenol and ortho-phthalate chemical groups, as well as antimony trioxide).

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)

Under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

1) Prohibits, a person, in the course of doing business, from knowingly and intentionally exposing any individual to a chemical known to the state to cause cancer or reproductive toxicity without first giving clear and reasonable warning to such individual. (HSC § 25249.6)

2) Requires the Governor to publish a list of chemicals known to the state to cause cancer or reproductive toxicity and to revise and republish the list in light of additional knowledge at least once per year. (HSC § 25249.8) (Note: Under Proposition 65, the Office of Environmental Health Hazard Assessment (OEHHA) has listed antimony trioxide; the bisphenols bisphenol A (BPA), bisphenol S (BPS) and tetrabromobisphenol A; and, 6 phthalates as chemicals known to the state to cause cancer, birth defects, and/ or other reproductive harm.)

FISCAL EFFECT: Unknown.

COMMENTS:

Need for the bill: According to the author, "Thousands of chemicals are used to make the materials that come into contact with our food and beverages. Chemicals from these materials can migrate into the food and our bodies, and some of these chemicals have been linked to negative health impacts ranging from allergic reactions to asthma, obesity, diabetes, male and female reproductive problems including infertility and decreased testosterone, learning disabilities, cardiovascular disease and increased risk of breast cancer. AB 1148 will allow California to act to reduce exposures through food to the same harmful chemicals that our state has already banned in other product categories: Phthalates, Bisphenols and Antimony Trioxide."

Antimony trioxide: Antimony trioxide is a compound produced from antimony, a lustrous gray metalloid, or naturally occurring antimony-oxide containing minerals. When combined with flame retardants, antimony trioxide reduces the amount of flame retardant chemicals required in a product to maintain the same level of effectiveness. Flame retardants with antimony trioxide are used in consumer products, including upholstered furniture, textiles, carpeting, plastics, and children's products. Antimony trioxide is also used in the production of polyethylene terephthalate (PET) plastics to fabricate ovenproof or microwavable plastic trays and plastic water bottles. Finally, antimony trioxide is used as an additive in art and other specialty glasses, paints, and pigments.

Concerns with antimony trioxide: According to OEHHA, "Antimony trioxide is on the Proposition 65 list because it can cause cancer. Exposure to antimony trioxide may increase the risk of cancer."

To assess the risks of antimony trioxide, the National Toxicology Program (NTP) at the United States Department of Health and Human Services conducted a systematic review of peer-reviewed literature on the chemical, including cancer studies in humans and experimental animals, using standard methods for the Report on Carcinogens (the final monograph on which was submitted in October, 2018). NTP states, "NTP concluded that antimony trioxide is reasonably anticipated to be a human carcinogen. This conclusion is based on sufficient evidence of carcinogenicity from studies in experimental animals and supporting mechanistic data… [United States] residents should take steps to reduce exposure to antimony trioxide to decrease cancer risk. A listing in the [Report on Carcinogens] identifies a substance or exposure circumstance as known or reasonably anticipated to be a human carcinogen and thus indicates that it can cause cancer under certain circumstances."

Exposure to antimony trioxide: OEHHA, on its "Antimony Trioxide" factsheet, states that the main ways a person can be exposed to antimony trioxide are, "Using PET plastic containers to cook food in an oven or microwave; Breathing in antimony trioxide in air and dust; [and,] Swallowing dust transferred to the hands to the mouth." These exposures occur when antimony trioxide is released from treated products.

OEHHA further explains that exposure to antimony trioxide occurs by breathing or swallowing antimony trioxide migrating in air and dust from products made with flame retardants that use antimony trioxide. OEHHA states that exposure to antimony trioxide from PET containers can occur because PET containers can degrade at high temperatures (especially above 110° F). OEHHA also maintains that during pregnancy, antimony trioxide can pass from mother to baby.

In order to reduce exposure to antimony trioxide, OEHHA recommends that people, along with taking other actions,

- "Avoid using PET plastic containers or trays to heat food in a conventional oven or microwave. Conventional ovens can heat food to higher temperatures, increasing the transfer of chemicals from PET containers to food.
- Avoid storing PET plastic containers in a hot place (especially above 110° F) such as a car or garage, for a long time."

Bisphenols: Bisphenols are a group of synthetic, high volume chemicals that are used in the manufacturing of polycarbonate plastics and epoxy resins. The most widely used and well-studied chemical in the group is BPA, but the use of other bisphenols, such as BPS and bisphenol F (BPF), is increasing as manufacturers use these chemicals to replace BPA, especially following restrictions on the use of BPA.

The Human Biomonitoring for Europe program (HBM4EU), a joint European human biomonitoring initiative, explains in its "Bisphenols: What You Need to Know" factsheet that BPA is used as a building block in the production of polycarbonate plastics. The resulting plastic is clear and tough and is used to manufacture a wide range of consumer goods, including sports equipment, impact-resistant safety equipment, automobile parts, and food containers, such as reusable beverage bottles and reusable plastic tableware. Another primary use of BPA is in the production of epoxy resins used to line food and beverage cans to avoid corrosion of the

metal and to avoid migration of metals into the can's contents. Epoxy resins are also used to line water pipes and in the manufacture of thermal papers used for shop sales receipts, ATM receipts, public transport tickets, parking tickets, and airline boarding passes. Finally, BPA is used in dental sealants. In terms of other bisphenols, both BPS and BPF are also used in the manufacture of plastics. Also, BPS is increasingly used in the production of thermal papers.

Concerns with bisphenols: The September 2019, article, "The adverse health effects of bisphenol A and related toxicity mechanisms," published in *Environmental Research,* summarizes concerns about BPA as follows: "Due to its mass productions and widespread applications, the presence of BPA is ubiquitous in the environment. BPA can enter the body via different ways such as [the] digestive tract, respiratory tract and dermal tract. As an endocrine disruptor, BPA has estrogen-like and anti-androgen effects causing damages to different tissues and organs, including [the] reproductive system, immune system and neuroendocrine system, etc. Recently, it has been shown that BPA could induce carcinogenesis and mutagenesis in animal models."

Further describing the concerns with BPA, HBM4EU says, "There is a large amount of literature on the toxicity of bisphenol A including at low doses… Studies have indicated that it could be associated with increased risk for:

- Fetal development: miscarriages, decreased birth weight at term,
- Reproductive and sexual dysfunctions,
- Breast and prostate cancer or at least significant breast tissue remodeling. Studies have indicated that those effects were associated with gestational and neonatal exposure…
- Altered immune system activity,
- Obesity and metabolic dysfunctions and diabetes in adults,
- Cardiovascular disease in adults,
- Cognitive and behavioural development in young children."

HBM4EU says, however, "Despite the wealth of studies, there are still controversies concerning the toxic effects of BPA. Those are related to some lack of reproducibility of the experimental studies possibly due to different designs as well as on issues related to the analytical procedures used for BPA assays."

As concerns have mounted over the health and environmental impacts of exposure to BPA, manufacturers have replaced BPA with other, less studied, bisphenols. Unfortunately, studies are indicating that these bisphenols display hazard traits similar to, and sometimes worse than, BPA. These studies include "Bisphenol S in Food Causes Hormonal and Obesogenic Effects Comparable to or Worse than Bisphenol A: A Literature Review" published in *Nature* in February, 2020, which states,

> "In recent years, bisphenol analogues such as bisphenol S (BPS) have come to replace bisphenol A in food packaging and food containers, since bisphenol A (BPA) has been shown to leach into food and water, causing numerous negative health effects. Unfortunately, little or no research was done to determine the safety of these BPA-free products before they were marketed to the public as a healthier alternative. The latest studies have shown that some of these bisphenol analogues may be even more harmful than the original BPA in some situations... It was found that BPS works via different pathways than does BPA while causing equivalent obesogenic [i.e., obesity-promoting] effects, such as activating preadipocytes, and that BPS was correlated with metabolic disorders, such as

> gestational diabetes, that BPA was not correlated with. BPS was also shown to be more toxic to the reproductive system than BPA and was shown to hormonally promote certain breast cancers at the same rate as BPA. Therefore, a strong argument may be made to regulate BPS in exactly the same manner as BPA."

Another study, "Bisphenol Analogues Other Than BPA: Environmental Occurrence, Human Exposure, and Toxicity: A Review," published in *Environmental Science and Technology* in 2016, states,

> "Numerous studies have investigated the environmental occurrence, human exposure, and toxicity of bisphenol A (BPA). Following stringent regulations on the production and usage of BPA, several bisphenol analogues have been produced as a replacement for BPA in various applications… Whereas BPA was still the major bisphenol analogue found in most environmental monitoring studies, BPF and BPS were also frequently detected. Elevated concentrations of BPAF, BPF, and BPS (i.e., similar to or greater than that of BPA) have been reported in the abiotic environment and human urine from some regions. Many analogues exhibit endocrine disrupting effects, cytotoxicity, genotoxicity, reproductive toxicity, dioxin-like effects, and neurotoxicity in laboratory studies. BPAF, BPB, BPF, and BPS have been shown to exhibit estrogenic and/or antiandrogenic activities similar to or even greater than that of BPA."

OEHHA listed BPA for effects on the female reproductive system in 2015 and for developmental effects in 2020. According to OEHHA, "BPA is on the Proposition 65 list because it may harm the developing baby, and it may harm the female reproductive system, including the ovaries and eggs."

On January 3, 2025, OEHHA added the male reproductive toxicity endpoint to the listing of BPS on the Proposition 65 list for reproductive toxicity. This listing was done via the “State’s Qualified Experts” mechanism, based on the Developmental and Reproductive Toxicant Identification Committee’s determination that this chemical was "clearly shown to cause male reproductive toxicity." OEHHA first placed BPS on the Proposition 65 list for reproductive toxicity, based on the female reproductive endpoint, on December 29, 2023.

Exposure to bisphenols: HBM4EU's factsheet states that most human exposure to BPA is through the consumption of food and beverages that have been in contact with epoxy resin linings or polycarbonate plastic containers. Food or drinks may contain very low levels of BPA that have migrated from containers and linings. Small children have an increased risk of becoming exposed to BPA due to their higher food consumption compared to their size. People may also be exposed to BPA through the skin by handling thermal papers, such as register receipts. Limited exposure to BPA may also occur through breathing in contaminated air and dust.

OEHHA, on its "Bisphenol A (BPA)" factsheet, states that exposure to BPA can occur by, "Consuming food or drinks from containers with BPA, and food or drinks exposed to BPA from plastic tableware, cookware, or plastic wrap." Specifically, OEHHA states that, "Sources of exposure to BPA include:

- Some linings in metal food and drink cans, jar lids, and bottle caps.

- Polycarbonate plastic items: some water bottles, jugs for water dispensers, dishes, utensils, cookware, food storage containers, and electric kettles. Items made of this hard plastic often have recycle code 3 or 7."

Phthalates: Ortho-phthalates, often referred to as "phthalates," are ubiquitous, high volume, synthetic chemicals used in plastic products, most often polyvinyl chloride (PVC or vinyl), to make the material soft, pliable, and less brittle. Historically, certain phthalates have been used in food packaging or other minor food contact uses, such as components of adhesives, lubricants, and sealants. They have also been used in medical products, toys, vinyl flooring, paint, cleaning products, cosmetics, and other consumer products.

Concerns about phthalates: The May 2021 article in *Healthcare*, "Phthalates and Their Impacts on Human Health," summarizes concerns about phthalates as, "Phthalates are a series of widely used chemicals that demonstrate to be endocrine disruptors and are detrimental to human health. Phthalates can be found in most products that have contact with plastics during producing, packaging, or delivering. Despite the short half-lives in tissues, chronic exposure to phthalates will adversely influence the endocrine system and functioning of multiple organs, which has negative long-term impacts on the success of pregnancy, child growth and development, and reproductive systems in both young children and adolescents." The April 2021 article in the *American Journal of Public Health*, "Neurotoxicity of Ortho-Phthalates: Recommendations for Critical Policy Reforms to Protect Brain Development in Children," says, "Robust data from longitudinal birth cohort studies and experimental studies of perinatally exposed animals indicate that exposure to ortho-phthalates can impair brain development and increase risks for learning, attention, and behavioral disorders in childhood. This growing body of evidence, along with known adverse effects on male reproductive tract development, calls for immediate action."

OEHHA lists six phthalates on the Proposition 65 list because they can cause birth defects or other reproductive harm and/or cancer.

Exposure to phthalates: The April 2021 article in the *American Journal of Public Health*, says, "Diet is a particularly important exposure pathway for some phthalates, including DEHP and DiNP. Phthalates have been shown to leach into food from plastic equipment like tubing used in commercial dairy operations, lid gaskets, food preparation gloves, conveyor belts, and food packaging materials. As such, consumption of fast food and other dining-out sources, as well as lipophilic foods such as dairy, can be important dietary sources of phthalate exposures."

OEHHA, on its "Phthalates" fact sheet, further explains that exposure to the phthalates listed under Proposition 65 occurs as follows,

- "These phthalates can be gradually released from products into indoor environments such as homes, schools, daycare centers, and offices. They can settle on floors and other surfaces, and can accumulate in dust and air, where they can be inhaled.
- These phthalates can be absorbed into the body when you touch or come into other direct contact with phthalate-containing products.
- Exposure to [the phthalate] DEHP can result from contact with medical devices or during medical procedures in which devices or equipment containing phthalates are used.
- Low levels of [the phthalates] DEHP and DINP have been detected in some foods that have been in contact with plastics during processing and packaging.
- During pregnancy, these phthalates can pass from mother to baby."

Further, OEHHA says exposure to the six phthalates listed under Proposition 65 occurs by, "Transferring phthalates from the hands to the mouth and swallowing; Breathing in phthalates present in air and dust; Consuming food containing DEHP or DINP as a result of processing or packaging; Absorbing phthalates through the skin from products that contain phthalates; [and,] Undergoing medical procedures that use devices or equipment containing DEHP."

Chemicals in food packaging: A January 2023 article, "Endocrine modulating chemicals in food packaging: A review of phthalates and bisphenols," published in *Comprehensive Reviews in Food Science and Food Safety* (*Food Science* article), notes that packaging is a critical component of the food industry designed to maintain shelf life and protect food contents from biological and chemical changes after processing. Snacks, takeaway foods, and ready-to-eat food type consumption rates are increasing due to current societal trends, technological changes, and the engineering of single-use plastic materials. The increasing use of packaging materials has elevated consumer and environmental exposure to these materials and their constituents. New packaging materials and technologies are rapidly emerging to accommodate the growth in these food consumption practices.

According to the *Food Science* article, "Studies have suggested people are exposed to phthalates and bisphenols through their diet. Phthalates and bisphenols are well known to be toxic substances with serious human and environmental health risks depending on exposure conditions… Phthalates can migrate from the polymer and enter the human body by dermal absorption in addition to ingestion… The source of human exposure to phthalates is generally from two sources: (i) desorption from consumer products migrating to the skin and (ii) migration from food-packaging materials into the food matrix. Phthalates are abundant in the environment as their release is accessible into the water, air, and soil… Current data suggest that [endocrine disrupting chemicals] (phthalates, bisphenols) can migrate from polymers into food matrices."

As mentioned earlier, OEHHA, on its Proposition 65 fact sheets, also discusses exposure to specific chemicals in food packaging. For example, OEHHA states that exposure to antimony trioxide from PET containers can occur because PET containers can degrade at high temperatures (especially above 110° F) and that heating food to higher temperatures increases the transfer of chemicals from PET containers to food. OEHHA also states that low levels of the phthalates DEHP and DINP have been detected in some foods that have been in contact with plastics during processing and packaging. Finally, OEHHA states that exposure to BPA can occur by, "Consuming food or drinks from containers with BPA, and food or drinks exposed to BPA from plastic tableware, cookware, or plastic wrap."

Summarizing concern about chemicals in food packaging, in March, 2020, a team of scientists working across scientific disciplines-- including developmental biology, endocrinology, epidemiology, toxicology, and environmental and public health-- published the article "Impacts of food contact chemicals on human health: a consensus statement" in *Environmental Health.* In the article, the scientists state their "[concern] that public health is currently insufficiently protected from harmful exposures to food contact chemicals." Excerpts from the article follow, illustrating the authors' position:

- "Chemicals can transfer from food contact materials and articles into food. This phenomenon is known as migration and has been studied since the 1950s… There are around 1200 peer-reviewed scientific studies clearly demonstrating migration of multiple [food contact chemicals] from food contact materials and articles."

- "Many of the chemicals that are intentionally used in the manufacture of food contact articles have not been tested for hazard properties at all, or the available toxicity data are limited. Moreover, endocrine disruption, as a specific hazard of concern, is not routinely assessed for chemicals migrating from food contact articles, although some chemical migrants are known endocrine disruptors."

- "Substances of very high concern (SVHC) are defined under the EU regulation on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as chemicals with unacceptable hazard properties (like carcinogenicity, mutagenicity, toxicity for reproduction, persistence and bioaccumulation, or endocrine disruption)… Several SVHCs (i.e., known hazardous chemicals) are authorized for use in food contact in Europe and other countries. For several SVHCs, as well as other known hazardous substances, there is evidence for migration from food contact articles, for example migration of several ortho-phthalates, per- and polyfluoroalkyl substances, and perchlorate."

The authors conclude that, among other recommendations, "Known hazardous chemicals should not be used in the manufacture of food contact articles if their presence in the finished article, by means of modern chemical analysis, cannot be excluded to a reasonable extent… Authorized lists of chemicals for food contact uses should be revised and known hazardous chemicals removed, such as substances of very high concern (SVHC), if their use is considered non-essential."

California legislation on chemicals in food packaging: The California legislature has previously taken action when concerns were raised about chemicals in food packaging. In 2021 the legislature passed, and Governor Gavin Newsom signed, AB 1200 (Ting, Chapter 503, Statutes of 2021), which, among other provisions, prohibits, beginning January 1, 2023, the sale of plant fiber-based food packaging that contains PFAS. AB 1200 also requires manufacturers to use the least toxic alternative when replacing PFAS in food packaging.

Legislation on chemicals in food packaging in other jurisdictions: Restrictions and prohibitions on the chemicals in this bill at the state and federal levels and in other countries are too numerous to list here; however, a few states have taken action similar to that proposed by this bill, including,

- Maine (Public Law c. 277): Starting January 1, 2022, food packaging sold in Maine cannot contain intentionally introduced amounts of phthalates. Food packaging includes packaging that contains a food or beverage product, and plastic disposable gloves.
- Washington (Chapter 173-337 Washington Administrative Code): Starting January 1, 2025, no person may manufacture, sell, or distribute a priority consumer product that contains a bisphenol-based epoxy can liner, excluding TMBPF-based epoxy can liners.

This bill: This bill prohibits, on and after January 1, 2027, a person from distributing, selling, or offering for sale in the state any food packaging that contains intentionally added antimony trioxide, bisphenols, or ortho-phtalates at or above a limit determined by DTSC in regulation.

Regulating chemicals as a class: In December 2016, OEHHA scientists published the article, "Identifying Chemical Groups for Biomonitoring," in the journal *Environmental Health Perspectives*, which states "Regulatory agencies face daunting challenges identifying emerging

chemical hazards because of the large number of chemicals in commerce and limited data on exposure and toxicology. Evaluating one chemical at a time is inefficient and can lead to replacement with uncharacterized chemicals or chemicals with structural features already linked to toxicity... Evaluating chemical groups, rather than individual chemicals, is an efficient way to respond to shifts in chemical use and the emergence of new chemicals. This strategy can enable earlier identification of important chemicals for monitoring and intervention."

A January 2023 article, "Advancing the science on chemical classes," published in *Environmental Health* supports this argument, stating,

> "With tens of thousands of chemicals already in use and ongoing demand for new chemicals and uses, an approach to hazard assessment, risk assessment, and risk management including bans and restrictions, based on groups or classes of compounds is needed. Furthermore, there are many advantages to assessing chemicals as classes including:
>
> 1) Reducing the tendency to assume that chemicals with no data pose no risk;
> 2) Reducing regrettable substitutions by extrapolating information from data-rich chemicals to data-poor chemicals within the same class;
> 3) Improving risk assessment by considering the cumulative health impacts of exposure to multiple chemicals, thus correcting the underestimation of risk that results from the single-chemical approach;
> 4) Improving public health by reducing exposure to many chemicals of concern at once;
> 5) Increasing efficiency and reducing the use of financial and human resources, resulting in shorter decision-making times;
> 6) Facilitating monitoring of environmental exposures, including biomonitoring; and,
> 7) Better-informed decision-making throughout the supply chain, including among consumers."

The article, however, cautions that there are challenges with regulating chemicals by chemical class, saying,

> "Although the advantages to chemical grouping are many, there are also significant barriers. Unless there is a legal requirement or a clear competitive advantage, agencies and other entities are likely to continue applying familiar and customary approaches. Furthermore, lack of experience in implementing a class approach and lack of established best practices and procedures are challenges to implementation; for example, determining the boundaries of a class can require judgment and could be subject to differing opinions based on choice of criteria and decision context. In the private sector, some companies may have policies for their suppliers indicating certain groups of chemicals are unacceptable in their products, but the complex supply chain, lack of ingredient transparency along the supply chain, and competitive markets are significant barriers to implementation and/or broader adoption of these policies."

Regulating chemicals as a class in California: California has taken regulatory and legislative action on several classes of chemicals. For example, DTSC scientists, in the February, 2021, *Environmental Health Perspectives* article, "Regulating PFAS as a Chemical Class under the California Safer Consumer Products Program," described 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." 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."

Following the rationale for regulating chemicals as a class in the above mentioned article, DTSC has taken action on the chemical class of PFAS substances under its Safer Consumer Products Program, including in 2020, when it proposed listing plant fiber-based food packaging containing any chemicals from the chemical class PFAS as Priority Products (this was no longer pursued once Governor Newsom signed AB 1200 (Ting, Chapter 503, Statutes of 2021) into law); in 2021, when it adopted as a Priority Product carpets and rugs containing PFAS; and, in 2022, when it adopted as a Priority Product any new treatments containing PFAS for use on converted textiles or leathers such as carpets, upholstery, clothing, and shoes. In addition to regulating products containing PFAS chemicals, DTSC listed as a Priority Product laundry detergents containing chemicals from the chemical class nonylphenol ethoxylates (NPEs) in 2024. Listing a Priority Product through rulemaking subjects those products to regulation under the Safer Consumer Products Program.

The California legislature has also taken action on prohibiting or restricting the use of classes of chemicals, including passing a slew of bills over the last 6 or so years prohibiting PFAS as a class at different levels across many product categories, including a ban on menstrual products containing PFAS (AB 2515, Papan, Chapter 1008, Statutes of 2024); a ban on textiles that contain PFAS (AB 1817,Ting, Chapter 762, Statutes of 2022); a ban on cosmetic products that contain PFAS (AB 2771, Friedman, Chapter 804, Statutes of 2022); a ban on food packaging that contains PFAS (AB 1200, Ting, Chapter 503, Statutes of 2021); a ban on new juvenile products that contain PFAS (AB 652, Freidman, Chapter 500, Statutes of 2021); and, a ban on firefighting foam containing PFAS (SB 1044, Allen, Chapter 308, Statutes of 2020).

Last year, the legislature additionally enacted a prohibition on the chemical class of bisphenols in juvenile's feeding, sucking, or teething products when it passed, and Governor Newsom signed, SB 1266 (Limon, Chapter 790, Statutes of 2024).

California's Biomonitoring program also looks at chemicals as a class. Biomonitoring California measures and monitors "designated chemicals," defined in statute as "chemicals that are known to, or strongly suspected of, adversely impacting human health or development, based upon scientific, peer-reviewed animal, human, or in vitro studies, and according to certain parameters," in Californians' bodies. The Biomonitoring California program designated chemicals in the bisphenol (added in 2012) and ortho-phthalate (added 2015) chemical groups as "designated chemicals." Further, the classes of bisphenols and ortho-phthalates are designated as "priority chemicals" under the Biomonitoring California program because of their elevated public health importance in California. Due to their Biomonitoring California designations, the classes of bisphenol and ortho-phthalate chemicals are also designated as "candidate chemicals" under the Safer Consumer Products Program.

This bill: This bill prohibits, on and after January 1, 2027, a person from distributing, selling, or offering for sale in the state any food packaging that contains intentionally added chemicals from the bisphenol or ortho-phtalate chemical classes at or above a limit determined by DTSC in regulation. It also prohibits the use of antimony trioxide in the same way.

The definition in AB 1148 for bisphenol is identical to that in HSC § 108942, which was established in statute by SB 1266 (Limon, Chapter 790, Statutes of 2024). AB 1148 and statute define "bisphenol" as a chemical with two phenol rings connected by a single linker atom. Both specify that the linker atom and phenol rings may have additional substituents. The difference, however, is that AB 1148 exempts the bisphenol TMBPF from the prohibition on use in food packaging, but authorizes DTSC, if it determines that TMBPF poses a significant risk to human health, to limit, via regulation, or prohibit the sale of any food packaging that contains TMBPF.

For this exemption the author's office argues, "TMBPF is a chemical used to make an epoxy lining for food and beverage cans, but is not present above trace amounts in the final lining. A number of studies show that it does not have the same estrogenic and anti-androgenic properties that have been such a concern for other bisphenols such as BPA and BPS. When Washington State banned the class of bisphenols in beverage can linings and required reporting of the class in food can linings, they identified TMBPF as a safer alternative and exempted it from both the ban and the reporting requirement. However some other research studies suggest some emerging issues of concern, justifying continued monitoring of the developing science by DTSC, which is provided for in the bill language."

Chemical bans and the Safer Consumer Products Program: In 2008, California enacted AB 1879 (Feuer and Huffman, Chapter 559, Statutes of 2008) to establish a science-based regulatory process for identifying and prioritizing chemicals of concern in consumer products, to create methods for analyzing alternatives to existing hazardous chemicals, and to ultimately take regulatory action to reduce the level of harm from the chemicals in those products. DTSC did this by promulgating the Safer Consumer Products regulations (sometimes referred to as the Green Chemistry regulations), which took effect in October 2013.

While the intent of AB 1879 is to establish a robust and thorough regulatory process for chemicals in consumer products, it has long been recognized that DTSC does not have the resources to evaluate and take action on all, or even a significant portion of, chemicals in every consumer product application. The permutations of product and chemical combinations are virtually limitless. To that end, the Safer Consumer Products statute does not preclude the Legislature from taking action on the use of chemicals in consumer products, which, when there is credible scientific evidence to support a change in state policy to protect public health or the environment, the Legislature can act more expeditiously than can DTSC. Since AB 1879 was enacted, the Legislature has enacted many policies on various chemical-product applications, including a ban on bisphenols in juvenile's feeding, sucking, or teething products (SB 1266, Limon, Chapter 790, Statutes of 2024); a ban on intravenous solution containers made with the phthalate DEHP (AB 2300, Wilson, Chapter 562, Statutes of 2024); a ban on food products that contain brominated vegetable oil, potassium bromate, propylparaben, and red dye 35 (AB 418, Gabriel, Chapter 328, Statutes of 2023); a ban on flame retardants in children's products, mattresses, and upholstered furniture (AB 2998, Bloom, Chapter 924, Statutes of 2018); a ban on BPA in toddler sippy cups and bottles (AB 1319, Butler, Chapter 467, Statutes of 2011); a ban on the sale of jewelry with cadmium at certain levels (AB 929, Pavley, Chapter 313, Statutes of 2010); and, a ban on the sale of brake pads containing copper in exceedances of certain levels (SB 346, Kehoe, Chapter 307, Statutes of 2010); among others.

DTSC, in fact, wrote in support of AB 1319 (Butler) stating: "DTSC does not believe that the [Safer Consumer Products] 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. Not only have the regulations taken longer to adopt than originally anticipated, DTSC also expects that the process to be represented in the regulations will be subject to time and resource constraints. There may be circumstances that warrant more timely action than DTSC can accommodate through its process."

Proponents of this bill argue that, "The chemicals in the products in this bill warrant action through the legislature rather than through the Safer Consumer Products regulatory process because the Safer Consumer Products program did consider both phthalates and [BPA] in food packaging as potential Priority Products. In both cases they decided not to proceed with consideration because of other priorities and industry was already voluntarily moving toward safer alternatives. However, there is no legal restriction preventing industry from using, or going back to using, these chemicals. To truly and permanently protect consumers from these hazardous chemicals, and give consumers the certainty and full protection they want and deserve, the legislature must pass AB 1148."

Pressure for legislative action on chemical bans: Since AB 1879 was passed in 2008, DTSC has adopted eight Priority Products through their Safer Consumer Products rulemaking process, and currently has proposed one more. A "Priority Product" is a consumer product that (1) contains one or more "candidate chemicals," which are chemicals that exhibit a hazard trait and/or an environmental or toxicological endpoint; that are found on one or more specified authoritative lists; and, that have the potential to harm people or the environment when used in the product; and, (2) has been formally listed in the California Code of Regulations through rulemaking. This means that, during more than 15 years since the enactment of AB 1879, only eight chemical/ product combinations are being regulated through the Safer Consumer Products Program.

In 2022, DTSC requested 37.0 permanent positions and $7.2 million from the Toxic Substances Control Account in 2022-23 and ongoing to provide the resources needed to fully implement the Safer Consumer Products Program. In its budget proposal, DTSC states,

> "With the additional resources, DTSC will be able to completely implement the four steps of the [Safer Consumer Products] regulations... Based on the current [Safer Consumer Products] regulations implementation status and the resources requested here, the outcomes will be: …Accelerate the identification of Priority Products and the rate of regulation adoption to list new Priority Products. Previous resource increases have enabled more efficient research on the product categories in the Work Plan. In calendar year 2022, [Safer Consumer Products] expects to identify at least five possible Priority Products. With additional resources this number will increase to 12 products per year over the subsequent two years with enhanced exposure considerations. In calendar year 2022, [Safer Consumer Products] expects to initiate one to three Priority Product listing regulations and with additional resources. Beginning in calendar year 2023, [Safer Consumer Products] will increase rulemaking capacity to five Priority Product listings per year…"

DTSC's funding request was approved; however, even with increased resources, since 2023, DTSC has adopted three Priority Products, instead of the at least then that it suggested was possible. This year they have only proposed one Priority Product, and have adopted none so far.

While the Safer Consumer Products Program is meant to be a vigorous program, the pace at which the rulemaking process has progressed has frustrated stakeholders and increased pressure on legislators to protect public health and the environment by taking rapid action on concerning

chemicals in products. Often, this action has taken the form of legislation that prohibits or restricts the use of these chemicals. This work often requires consideration of large, complex bodies of scientific research, and/or decision-making based on emerging scientific research that reveals concerns without providing clarity on evidence-based actions that decision makers can or should take to mitigate those concerns.

This bill: This bill includes a regulatory and enforcement framework, outside of the Safer Consumer Products Program, for DTSC to implement the prohibition of the manufacture and sale of food packaging containing antimony trioxide, bisphenols, or ortho-phtalates at or above a limit determined by DTSC in regulation. Specifically, this bill authorizes DTSC to adopt regulations to implement, enforce, interpret, or make specific the provisions of this bill. In addition, this bill authorizes DTSC to, by regulation, establish standards for use of antimony trioxide, bisphenols, and ortho-phtalates in food packaging that are more protective of public health, sensitive populations, or the environment than any original standards established by DTSC, giving DTSC the authority to update its regulatory limit as science and technology advances.

The regulatory and enforcement structure of this bill is similar to that in SB 1266 (Limon, Chapter 790, Statutes of 2024), which prohibits the manufacture or sale of any juvenile's feeding, sucking, or teething product that contains bisphenols (see below).

Regarding the Safer Consumer Products Program, *this bill* specifically clarifies that the provisions of the bill shall not be construed to prohibit or restrict the authority of DTSC under its Safer Consumer Products Program to prioritize or take action on a product containing any form of antimony trioxide, bisphenol, or ortho-phthalate, in order to limit exposure to or reduce the level of hazard posed by any form of antimony trioxide, bisphenol, or ortho-phthalate. Additionally, this bill provides that if DTSC adopts a regulatory response under its Safer Consumer Products Program regarding the use of any form of antimony trioxide, bisphenol, or ortho-phthalate in a food packaging product and DTSC has posted a notice on its internet website that it has adopted the regulatory response, then the prohibitions of this bill shall not apply to that product.

Arguments in support: A coalition of more than two dozen public health, environmental, environmental justice, and community organizations write in support,

> "Studies have shown that many of the chemicals used to make the many different forms of food and beverage packaging migrate into the food and our bodies. A number of these chemicals have been linked to negative health impacts. The chemicals addressed in this bill have been linked to health impacts ranging from immune disorders (allergies and asthma) to metabolic disorders (obesity, diabetes), male and female reproductive problems including low fertility, pregnancy and birth complications, birth defects of male genitalia, decreased testosterone, learning disabilities (ADHD, autism), cardiovascular disease, kidney disease and increased risk of breast and other cancers.
>
> While the FDA is prohibited from approving a chemical for food or beverage packaging if it is causing cancer to either humans or animals by federal law, the current situation is that a number of chemicals linked to cancer, including those addressed by AB 1148, are currently approved for use in food and beverage production and packaging.

AB 1148 will reduce exposures through food to the same harmful chemicals that our state has already banned in other product categories. For example, phthalates were banned from IV bags and tubing in 2024, cosmetics in 2020, and from toys and children's products in 2006. Soluble antimony was banned federally from children's toys in 2018, and last year this legislature expanded the ban on bisphenol A in baby bottles to include all bisphenols in children's feeding products and sucking or teething products (SB 1266 – Limon). Despite these actions, these same chemicals can still be found in some food packaging, including the lining of canned food and beverage bottles and caps…

We call on California to take action where the FDA is failing to protect public health from toxic chemicals in food packaging. We stand in strong support of AB1148."

Arguments in opposition: A coalition of seven industry organizations, including the American Chemistry Council, California Food Producers, and the International Bottled Water Association, write in opposition,

"…the regulatory framework and authority that rests with both the [FDA] and California's own [DTSC] provide the appropriate forum to assess the safety of food packaging materials, establish appropriate threshold levels for intentionally added ingredients, and if necessary, impose any regulatory requirements.

…With respect to the group of phthalates listed in AB 1148, FDA has conducted extensive research and concluded in 2022 "based on the information currently available to FDA, we do not have a basis to conclude that dietary exposure levels from approved ortho-phthalates exceed a safe level." As a result, four ortho-phthalates remain authorized for food additive use by FDA – DINP, DIDP, DCHP, and DEHP.

…FDA also conducted a multipronged research program… designed to assess the potential health effects of long-term exposure to bisphenol A (BPA). Results from the Core Study, the largest study ever conducted on BPA were released in 2018 in a final report from the U.S. National Toxicology Program (NTP). FDA stated "our initial review supports our determination that currently authorized uses of BPA continue to be safe for consumers."

…Antimony trioxide is widely used as the catalyst in the production of polyethylene terephthalate (PET) resin. PET is approved for use in food contact applications by the US Food and Drug Agency (21 C.F.R § 177.1630). The safety of human exposure to antimony trioxide from all sources, including PET plastic, has been assessed by [several international and domestic bodies]. These assessments concluded "no need for further testing" (OECD), "no need for risk reduction measures" (EU Risk Assessment), "does not constitute a danger in Canada to human life or health" (Health Canada), and "significant human health risks are not anticipated" (EPA). Additionally, California's Office of Environmental Health Hazard Assessment looked at listing antimony trioxide under Proposition 65 in 2023 and limited the scope to inhalation.

…As it relates to DTSC's existing authority, the Safer Consumer Products (SCP) statute grants broad authority to the department to identify chemical/product combinations and, if warranted, impose use restrictions… DTSC included "food contact articles" in its most recent SCP three-year workplan."

Double referral: Should this bill pass the Assembly Committee on Environmental Safety and Toxic Materials, it will be re-referred to the Assembly Committee on Judiciary.

Related legislation:

1. SB 1266 (Limon, Chapter 790, Statutes of 2024). Revises the existing prohibition on BPA in a juvenile bottle or cup established by AB 1319 (Butler, Chapter 467, Statutes of 2011) to instead prohibit the manufacture or sale of any juvenile's feeding, sucking, or teething product that contains any form of bisphenol above the practical quantitation limit to be determined by DTSC. Authorizes DTSC to enforce the bisphenol prohibition and to adopt regulations to implement, enforce, interpret, or make specific the bisphenol prohibition.

2. AB 2515 (Papan, Chapter 1008, Statutes of 2024). Prohibits the manufacture or sale of a menstrual product that contains regulated PFAS, as defined. Requires DTSC, by January 1, 2029, to adopt regulations to implement, interpret, enforce, or make specific the PFAS prohibition.

3. AB 2300 (Wilson, Chapter 562, Statutes of 2024). Prohibits, beginning January 1, 2030, the manufacture or sale of IV solution containers made with intentionally added DEHP. Additionally prohibits, beginning January 1, 2035, the manufacture or sale of IV tubing made with intentionally added DEHP.

4. AB 2244 (Ting, 2024). Would have prohibited a receipt provided to a consumer by a business or created by a manufacturer from containing, beginning on January 1, 2025, internationally added BPA followed by, beginning January 1, 2026, any bisphenols. This bill was held on the suspense file in the Senate Appropriations Committee.

5. AB 347 (Ting, Chapter 932, Statutes of 2024). Requires DTSC to enforce and ensure compliance with three existing laws that set limits for PFAS in food packaging, textiles, and juvenile products.

6. AB 1200 (Ting, Chapter 503, Statutes of 2021). Prohibits, beginning January 1, 2023, the sale of any food packaging that contains regulated PFAS, among other provisions.

7. AB 2762 (Muratsuchi, Chapter 314, Statutes of 2020). Prohibits, beginning January 1, 2025, the manufacturing or sale of a cosmetic product containing specified intentionally added ingredients, including several phthalates.

8. AB 1319 (Butler, Chapter 467, Statutes of 2011). 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 BPA if the item is primarily intended for children three years of age or younger.

9. AB 1108 (Ma, Chapter 672, Statutes of 2007). Prohibits the sale, manufacture, or distribution of specified phthalates in toys and childcare products designed for babies and children under three years of age, as defined.

REGISTERED SUPPORT / OPPOSITION:

Support

7th Generation Advisors
A Voice for Choice Advocacy
Active San Gabriel Valley
Alliance of Nurses for Healthy Environments
American Academy of Pediatrics, California
American College of Obstetricians & Gynecologists - District IX
Black Women for Wellness Action Project
Breast Cancer Over Time
Breast Cancer Prevention Partners
California Black Health Network
California Nurses for Environmental Health and Justice
Californians Against Waste
California Public Interest Research Group
Center for Environmental Health
Clean Earth 4 Kids
Clean Water Action
Cleanearth4kids.org
Climate Action California
Consumer Reports
Defend Our Health
Environmental Working Group
Facts Families Advocating for Chemical and Toxics Safety
Friends of The Earth
Green Science Policy Institute
Just Transition Alliance
Latino Coalition for A Healthy California
National Stewardship Action Council
Natural Resources Defense Council
Non-toxic Neighborhoods
Salinas Valley Solid Waste Authority
San Francisco Bay Physicians for Social Responsibility
San Francisco Baykeeper
Save the Bay
Sierra Club California
Sustainable Rossmoor
The Last Beach Cleanup

Opposition

American Chemistry Council
California Food Producers
Can Manufacturers Institute
Consumer Brands Association
Foodservice Packaging Institute
International Bottled Water Association
Pet Resin Association
Vinyl Institute
American Beverage Association
Pet Recycling Corp of California

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