



# Stakeholder Discussion Draft: Three Year Priority Product Work Plan (2024-2026)

**SAFER CONSUMER PRODUCTS PROGRAM**

**Department of Toxic Substances Control**



# CONTENTS

Introduction .....	1
Senate Bill 502 (ch. 701, stats. 2022).....	3
Priorities and Considerations for Implementation .....	4
<i>Environmental Justice Initiative</i> .....	5
Product Categories Currently Under Evaluation .....	6
Beauty, Personal Care, and Hygiene Products.....	6
<i>Rationale</i> .....	6
<i>Completed and Ongoing Work</i> .....	7
<i>Future Work</i> .....	9
Cleaning Products.....	10
<i>Rationale</i> .....	11
<i>Completed and Ongoing Work</i> .....	12
<i>Future Work</i> .....	12
Building Products and Materials Used in Construction and Renovation .....	13
<i>Rationale</i> .....	13
<i>Completed and Ongoing Work</i> .....	14
<i>Future Work</i> .....	15
Children’s Products .....	15
<i>Rationale</i> .....	16
<i>Completed and Ongoing Work</i> .....	16
<i>Future Work</i> .....	17
Paints.....	17
<i>Rationale</i> .....	18
Products that Contain or Generate Microplastics .....	20
<i>Rationale</i> .....	20
Product Categories Intended For Evaluation.....	22
Motor Vehicle Parts, Accessories, Maintenance, and Repair Materials .....	22
<i>Motor Vehicle Tires</i> .....	25
Food Contact Articles .....	26

Electronics .....	27
Products Used or Produced by Metal Plating and Finishing Facilities.....	27
Pet Care Products.....	29
Sporting and Athletic Equipment .....	29
Implementation of the Work Plan.....	30
References .....	31
Appendix A: Report Preparation .....	43
Preparers and Contributors.....	43
Reviewers.....	43
Appendix B: Terminology.....	44

## INTRODUCTION



The California Department of Toxic Substances Control's (DTSC's) Safer Consumer Products (SCP) Program has become internationally recognized for its efforts to reduce the use of hazardous chemicals in consumer products. In [our first decade](#), we built a regulatory program from scratch that has already prevented millions of pounds of hazardous chemicals from reaching California homes, workplaces, and ecosystems by motivating manufacturers to remove unnecessary chemicals of concern or to seek safer alternatives for those uses that are critical to their products. Our work continues to advance the design, development, and use of products that are chemically safer for people and the environment – including our most vulnerable and historically marginalized populations.

We identify specific consumer products that have the potential to expose people or the environment to one or more Chemicals of Concern, leading to significant or widespread harm. SCP identifies Chemicals of Concern from a list of [Candidate Chemicals](#)<sup>1</sup> known to have one or more hazard traits. We can potentially regulate products that contain these chemicals as [Priority Products](#), but only after stakeholder consultation and the release of a technical document that lays out the scientific rationale for regulating the product. At that point, we adopt the product-chemical combination as a Priority Product through rulemaking under California's Administrative Procedure Act. Once a product-chemical combination has been designated as a Priority Product, manufacturers selling their products in California are required to either identify and evaluate potentially safer alternatives through a rigorous Alternatives

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<sup>1</sup> The Terminology section at the end of this report provides a more thorough definition of the terms used herein.

Analysis process, remove or replace the Chemical(s) of Concern, or withdraw the product from the California market. Based on the outcome of an Alternatives Analysis, regulatory responses may be required to prevent or manage potential adverse impacts to human health or the environment that are associated with the Priority Product or selected alternative.

This Priority Product Work Plan (Work Plan) identifies categories of consumer products we plan to evaluate to identify Priority Products for regulation during the next three years (2024-2026). Pursuant to the SCP Regulations, Cal. Code Regs., tit. 22, sec. 69501.4(b), the SCP Program may only designate a Priority Product if it falls within one of the categories described in the current Work Plan, with three exceptions – legislative mandate, executive order, or by granting a [petition](#) to add a product-chemical combination to the Priority Products List. The inclusion of a product category in this Work Plan does not subject products to regulation, create any new legal obligations, or imply that we have made any determinations regarding the safety of products within that category. Further information about the process by which we propose and subsequently list a Priority Product can be found on the [SCP website](#).

This Work Plan identifies and explains the seven consumer product categories we plan to evaluate from 2024 through 2026. Four of these product categories have been carried over, mostly unchanged, from the [2021-2023 Work Plan](#):

- Beauty, Personal Care, and Hygiene Products
- Cleaning Products
- Building Products and Materials Used in Construction and Renovation

Children’s Products Two categories have been carried over and expanded as described below:

- Food Packaging (expanded to Food Contact Articles)
- Motor Vehicle Tires (expanded to Motor Vehicle Parts, Accessories, Maintenance, and Repair Materials)

And this Work plan includes two new categories:

- Paints (carved out of the Building Products and Materials Used in Construction and Renovation category)
- Products that Contain or Generate Microplastics

Apart from Food Contact Articles and Motor Vehicle Parts, Accessories, Maintenance, and Repair Materials, all the categories listed above are outlined in the *Product Categories Currently Under Evaluation* section, which also highlights our plans to perform preliminary screening research or propose Priority Products over the next three years. The *Product Categories*

*Intended for Evaluation* section – which includes the Food Contact Articles and Motor Vehicle Parts, Accessories, Maintenance, and Repair Materials categories – also identifies several additional product categories for which we may conduct screening research. This latter section is included in this current Work Plan in the interest of transparency and to allow flexibility to evaluate more product categories; however, our ability to evaluate these product categories will be based on our priorities and resources.

## **Senate Bill 502 (ch. 701, stats. 2022)**

Pursuant to Senate Bill 502 (SB 502), Work Plans beginning with this 2024-2026 edition must now include additional information specified in [Health and Safety Code section 25253.9 \(Chapter 701, Statutes of 2022\)](#). This law requires the following information be included in Work Plans:

- Information DTSC has about the chemicals that may be of concern within each product category or subcategory.
- Any additional ingredient information needed to evaluate the safety of consumer products within each category or subcategory.
- Information on how DTSC plans to fill data gaps.
- Timelines for collecting the information.
- Timelines for completing actions such as listing a Priority Product or completing an Alternatives Analysis.
- Timelines for finalizing regulatory response determinations for at least five product categories or subcategories in each Work Plan.

In this Work Plan, the timeline information listed above is included as a link to the [SCP Timeline](#) on our website. Maintaining a public timeline on our website has significant advantages over publishing one in the Work Plan. New Work Plans are issued only once every three years; whereas, the SCP Timeline is updated quarterly. This frequent, regular curation allows us to share information about our current and planned activities while also including projects and activities that have yet to be initiated while a Work Plan is being drafted. The SCP Timeline also includes activities and milestones for our ongoing projects, including consumer products and Candidate Chemicals that are under evaluation.

SB 502 also provides us with enhanced authority to require companies to disclose information about their products and ingredients. Previously, the SCP Regulations provided a process for requesting information from manufacturers and other entities via an “information call-in.” However, the only consequence for manufacturers failing to provide the requested information was being placed on a “failure to comply” list on DTSC’s website. SB 502 strengthens DTSC’s

call-in authority by establishing administrative or civil penalties for non-responsive companies. This provision has the potential to promote higher response rates to requests for information and provide more data about ingredients in consumer products.

In 2020, we conducted our first information call-in using the process in the SCP Regulations. We asked nail product manufacturers and other industry stakeholders to gather and report comprehensive lists of chemicals in nail products. We learned that these call-ins take considerable time and effort on the part of both DTSC and our stakeholders. As a result, we want to make sure we are specific about what data we request and from whom. We anticipate that, as we begin to research the categories in this Work Plan, we will better understand our data needs. We will share more information about those needs in the future, as well as how we anticipate meeting them, including with information call-ins under our enhanced authority where appropriate.

SB 502 also provides us with new authority to move directly to regulatory response for a Priority Product – that is, requiring manufacturers to take action to prevent or manage potential adverse impacts in lieu of requiring an Alternatives Analysis. We intend to actively explore opportunities to use this new authority during the 2024-2026 Work Plan cycle, in consultation with stakeholders (including industry experts, non-governmental organizations, and government agencies).

## **Priorities and Considerations for Implementation**

In each Work Plan, we identify a list of factors we will give special consideration to as we evaluate and prioritize consumer products for potential regulation. For 2024-2026, we have identified the following priorities:

- Fostering environmental justice by considering the extent to which Candidate Chemicals in consumer products may adversely and disproportionately impact vulnerable communities, including communities near manufacturing facilities.
- Protecting the health of children and workers from potential exposures to Candidate Chemicals in consumer products.
- Reducing potential releases of Candidate Chemicals from consumer products to indoor air and dust.
- Reducing the release of microplastics to the environment during all stages of the consumer product life cycle, including manufacturing, transportation, use, and end-of-life.



- Protecting California’s valuable and limited water resources and aquatic ecosystems from consumer product-derived chemical contamination.
- Leveraging the work of other boards, departments, and offices within the California Environmental Protection Agency (CalEPA) and other state agencies, and leveraging our new authorities under SB 502.

### ***Environmental Justice Initiative***

All people and ecosystems within California are connected via our interactions and shared resources, and we are all impacted by the effects of harmful product-chemical combinations in one way or another. However, certain groups of people have historically borne the brunt of these harms. For example, the California communities most overburdened with socioeconomic issues, poor public health, and environmental hazards are more likely to be predominately populated by people of color, especially individuals of African descent and Latin/Hispanic descent (OEHHA 2021). The harms posed by toxic substances in consumer products have greater impacts on these individuals and communities, as a result of structural inequities that exist in our society, including systemic racism, the theft of indigenous land, sexism, ableism, and others.

The concept of environmental justice calls for the fair distribution of environmental quality among social groups (Mitchell 2019). Our work is motivated by the urgent need to address actual and potential harm in communities that are disproportionately exposed to chemicals and other stressors. We commit to engaging with leaders and members of these communities, as well as with organizations working to promote environmental justice – listening to their concerns, sharing information, and working together for equitable protection from harmful chemicals in consumer products.



## PRODUCT CATEGORIES CURRENTLY UNDER EVALUATION



### Beauty, Personal Care, and Hygiene Products

**Definition:** Products that contact, or are intended to be rubbed on, poured on, sprinkled on, sprayed on, or otherwise applied to the human body for the purpose of maintaining hygiene, cleansing, beautifying, or altering appearance. This definition is adapted from the definition of cosmetics in [Title 21 of the Federal Food, Drug, and Cosmetic Act](#).

**Examples:** Cosmetics, hair care products, personal care products, hygiene products, and skin care products such as soaps, lotions, and cleansers.

**Inclusion in previous Work Plans:** 2015-2017, 2018-2020, 2021-2023

#### *Rationale*

This category includes many products that are used daily, which creates the potential for prolonged and continuous exposure to Candidate Chemicals in these products.

According to the [California Safe Cosmetics Program](#), the chemicals used in this product category include carcinogens, reproductive toxicants, and developmental toxicants. This is particularly concerning for women of childbearing age, salon workers, and children, all of whom are particularly vulnerable to harm from these chemicals. Some of these sensitive groups are likely to be in situations where they may be subject to increased exposure. For example, salon workers are exposed to Candidate Chemicals contained in beauty, personal care, and hygiene products they use professionally. Additionally, children of salon workers often accompany their parents to the workplace, where they are likely exposed to Candidate Chemicals in these products at a level above those of a typical consumer or salon patron. This is concerning because of “windows of vulnerability” that occur during the active stages of human growth and development.

Concurrent use of different products containing the same chemicals may contribute to aggregate chemical exposures. For example, a 2010 study of California households found that personal care products are frequently used by all ages, sexes, and socioeconomic groups, with many products being used daily or multiple times per day, suggesting a significant potential for exposure to chemicals contained in these products (Wu et al. 2010). Biomonitoring data clearly demonstrate human exposures to Candidate Chemicals found in these products (CDC 2015; Harley et al. 2016).

In addition, Candidate Chemicals used in personal care products may be of concern for the environment. Studies have detected chemicals from personal care products in effluents from wastewater treatment plants (Barber et al. 2013; Meyer, Powers and Hampton 2019), and additional treatment measures necessary to remove the most persistent of these chemicals, including 1,4-dioxane, are costly to implement. The most effective approach to reducing the burden of potentially harmful chemicals in wastewater streams, and subsequently the environment, is to avoid discharge down the drain.

### ***Completed and Ongoing Work***

To date, much of our work evaluating personal care products has focused on chemicals in nail products, including coatings, thinners, and removers. We have shared, and plan to share, the findings of this work through the release of documents and at public events, including:

- A public workshop in March 2017 on the health and safety impacts of chemicals in nail products.
- A [product-chemical profile for nail products containing toluene](#) and a public workshop in March 2019.
  - Regulations designating these products as a Priority Product took effect on January 1, 2023.
- A [product-chemical profile for nail products containing methyl methacrylate \(MMA\)](#) in January 2020 and a public workshop the following month.
- A [report](#) summarizing the findings of our information call-in on chemicals in nail products in April 2023, followed by a public workshop in May 2023.
- A [report](#) summarizing the findings of our analysis of chemicals in nail products, released in November 2023 followed by a public workshop in December 2023.
- A draft product-chemical profile on nail products containing triphenyl phosphate (TPHP), planned to be released in the Summer of 2024.

While nail products have been a significant area of focus, our evaluation of this category has extended to other personal care products.

We held a public workshop in 2021 to summarize the [preliminary findings](#) of our evaluation of various hair straightening products, focusing on Candidate Chemicals and potential adverse impacts related to children, women of childbearing age, and communities of color, as well as aquatic impacts. As a result of this work, we are currently developing a Product-Chemical Profile to list sodium hydroxide in hair straightening products as a Priority Product. Additionally, we drafted a decision document on formaldehyde in hair straighteners in May 2024, summarizing our findings and explaining the rationale for our decision not to regulate this product-chemical combination as a Priority Product.

We are also evaluating the use of parabens in leave-on personal care products, including makeup, moisturizers, creams, and cleansing wipes. Consumers use these products frequently and regularly, sometimes multiple times per day (Wu et al. 2010). In particular, pregnant women, infants, and children may be at higher risk for adverse impacts associated with the presence of butylparaben in leave-on products (Wei et al. 2021; Wilborn et al. 2023).

We have also evaluated Candidate Chemicals in menstrual products, particularly disposable tampons and menstrual pads. Disposable tampons and menstrual pads, which are used on highly sensitive vaginal and vulvar tissue, can contain a variety of Candidate Chemicals such as parabens, phthalates, and volatile organic compounds (VOCs). Exposure to these chemicals has been linked to ovulation disorders, female genital tumors, and spontaneous abortions, respectively (Ding, Batterman and Park 2019; Lin et al. 2020). Certain sensitive subpopulations may be more susceptible to adverse effects from exposure to these chemicals. In two studies, women of Asian, African, and Hispanic descent were found to use certain menstrual hygiene products, like sanitary pads, more frequently than women of European descent (Branch et al. 2015; Dodson et al. 2021). Despite these findings, there are data gaps around the potential for exposure to Candidate Chemicals in these products and, subsequently, the potential for adverse impacts. To call attention to these data gaps and solicit information to guide future prioritization efforts related to menstrual products, we plan to share our findings in a technical background document and at a public workshop in 2024. In addition, we hope to leverage our enhanced call-in authority to request ingredient data from manufacturers.

Some personal care products are washed down the drain when people wash their hands or bathe, while others are specifically designed to be rinsed off after they are applied. Candidate Chemicals from these products, such as 1,4-dioxane, may then be released to surface waters or incorporated into recycled water, where they may adversely impact fish, other wildlife, or drinking water sources. We plan to publicly release a technical document supporting future rulemaking for Priority Products related to 1,4-dioxane in personal care and cleaning products in the Summer of 2024.

We have systematically evaluated the use of quaternary ammonium compounds (QACs) in beauty products, personal care products, hygiene products, and cleaning products and plan to share our findings in a background document and at a public workshop in the Summer of 2024. Health and environmental research on QACs has typically focused on the limited subset that are used as antimicrobials, but many other QACs used as antistatic and softening agents, emulsifiers, and surfactants are understudied (Arnold et al. 2023). Some well-studied QACs are linked to dermal, respiratory, reproductive, and developmental toxicity in humans, as well as to aquatic toxicity. The persistence of QACs is also a concern. While some are known to be environmentally persistent, their persistence in indoor environments is less studied. Recent studies have found that indoor concentrations of QACs increased during the COVID-19 pandemic (Arnold et al. 2023), possibly as a result of increased use of antimicrobial products. We plan to continue our research on QACs during the 2024-2026 Work Plan cycle and engage with stakeholders to request information about understudied QACs.

### **Future Work**

We may begin evaluating toilet paper during this Work Plan cycle, as studies have shown that toilet paper can contain Candidate Chemicals such as per- and polyfluoroalkyl substances (PFASs), bisphenols, nonylphenol ethoxylates, and formaldehyde (Majerovich, Canty and Miedema 2010; Liao and Kannan 2011; Thompson et al. 2023).

We may also conduct screening research on Candidate Chemicals in three other personal care products that might cause or contribute to adverse impacts to sensitive subpopulations including workers, women of color, and low-income populations:

- **Hair dyes.** These products contain various Candidate Chemicals that are linked to increased risk of bladder cancer in hair salon workers and breast cancer in women of African descent (Gago-Dominguez et al. 2001; Eberle et al. 2020).
- **Fragrances.** Fragrances contain various Candidate Chemicals that, according to a report from Breast Cancer Prevention Partners (BCPP), are carcinogens, developmental toxicants, respiratory toxicants, and hormone disruptors (BCPP 2018). There is evidence suggesting that exposure to phthalates, one of the many ingredients in fragrance products, is widespread among sensitive populations (Washington State Department of Ecology 2020).
- **Skin Lighteners.** These products are typically marketed toward women of color based on societal norms that characterize lighter skin color as desirable and synonymous with social mobility (Anyangwe 2021). Skin lighteners contain various Candidate Chemicals such as hydroquinone (Owolabi et al. 2020).



## Cleaning Products

**Definition:** Our proposed definition of cleaning products conforms to that of “designated products” in the California Cleaning Product Right to Know Act of 2017<sup>2</sup> and includes several products used primarily for janitorial, domestic, or institutional cleaning purposes.<sup>3</sup> The law divides designated products into these subcategories:

- *“Air care product” means a chemically formulated consumer product labeled to indicate that the purpose of the product is to enhance or condition the indoor environment by eliminating unpleasant odors or freshening the air.*
- *“Automotive product” means a chemically formulated consumer product labeled to indicate that the purpose of the product is to maintain the appearance of a motor vehicle, as defined in Section 670 of the Vehicle Code, including products for washing, waxing, polishing, cleaning, or treating the exterior or interior surfaces of motor vehicles. “Automotive product” does not include automotive paint or paint repair products (discussed elsewhere in this document).*
- *“General cleaning product” means a soap, detergent, or other chemically formulated consumer product labeled to indicate that the purpose of the product is to clean, disinfect, or otherwise care for fabric, dishes, or other wares; surfaces including, but not limited to floors, furniture, countertops, showers, and baths; or other hard surfaces, such as stovetops, microwaves, and other appliances.*

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<sup>2</sup> Health and Safety Code, section 108952, subds. (a), (b), (j), and (n).

<sup>3</sup> “Designated product” excludes pesticides, as defined in section 12753 of the California Food and Agriculture Code.

- *'Polish or floor maintenance product' means a chemically formulated consumer product, such as polish, wax, or a restorer, labeled to indicate that the purpose of the product is to polish, protect, buff, condition, temporarily seal, or maintain furniture, floors, metal, leather, or other surfaces.*

**Examples:** Air fresheners, soaps, detergents, and waxes.

**Inclusion in previous Work Plans:** 2015-2017, 2018-2020, and 2021-2023.

### ***Rationale***

Cleaning products are regularly used in nearly every household, school, and building in a wide variety of applications. Many cleaning products contain one or more Candidate Chemicals. For example, air fresheners contain Candidate Chemicals such as benzene, toluene, and ethylbenzene (Vardoulakis et al. 2020). Using data from the California Air Resources Board's most recent consumer products emissions inventory, a recent study reported several volatile Candidate Chemicals in cleaning products that adversely impact the air quality of homes and workplaces, including n-methylpyrrolidone, methylene chloride, diethanolamine, formaldehyde, and styrene (Knox et al. 2023).

Due to their frequent use of cleaning products, the millions of cleaning workers in California and the U.S. are at higher risk of exposure to the Candidate Chemicals in these products than the general population. Enhanced cleaning efforts put in place during the COVID-19 pandemic have increased the exposure of both workers and consumers to Candidate Chemicals in cleaning products. We would like to better understand the role the pandemic has played in increased cleaning product use, which chemicals are in these cleaning products, and who the exposed populations are, including any sensitive subpopulations.

Exposure to Candidate Chemicals from cleaning products may disproportionately harm lower-income workers who live or work in vulnerable communities. In 2022, of the 3.6 million people employed as janitors, maids, and building and housekeeping cleaners in the U.S. (U.S. Bureau of Labor Statistics 2022), 41% were of Latin/Hispanic descent, 17% were of African descent, and 4% were of Asian descent; 59% of these workers were women (U.S. Bureau of Labor Statistics 2022). Many women in these occupations are likely to be of childbearing age, raising concerns about chemical exposures to their fetuses should they become pregnant. Epidemiological studies of cleaning workers and janitors have found that respiratory and dermatological diseases are the most common work-related health maladies affecting these workers, and the occurrence of some of these adverse impacts are associated with the use of cleaning agents (Charles, Loomis and Demissie 2009).

In addition to their adverse impacts on human health, cleaning products that are washed down the drain during or after use also have the potential to adversely impact aquatic ecosystems. Our research on 1,4-dioxane and nonylphenol ethoxylates (NPEs) in cleaning products indicates these compounds are environmentally persistent (DTSC 2019) in water and can impact fish and invertebrates (DTSC 2018).

### ***Completed and Ongoing Work***

The Cleaning Products category was a significant focus of our efforts under previous work plan cycles. We hosted a public [workshop](#) on nonylphenol ethoxylates (NPEs) in laundry detergents in June 2018, and we initiated a 45-day public notice and comment period [in November 2023 to propose listing Laundry Detergents Containing NPEs as a Priority Product](#). Additionally, we adopted Treatments Containing PFASs for Use on Converted Textiles or Leathers as a Priority Product in April 2022. In 2019, we held two public workshops on 1,4-dioxane in cleaning products, and plan to release a technical document supporting future rulemaking for Priority Products related to 1,4-dioxane in personal care and cleaning products in the Summer of 2024. We also continue to evaluate the use of QACs in cleaning products, as discussed above; however, some of these applications may be regulated under the Federal Insecticide, Fungicide, and Rodenticide Act and not be subject to the SCP Program's authority (HSC 25251(b)(6)).

### ***Future Work***

In addition to our ongoing work on 1,4-dioxane in cleaning products and our adoption of regulations to add Laundry Detergents Containing NPEs to our Priority Products List, we continue to research the scientific literature and market data for a variety of other chemicals and products in the Cleaning Products category.





## Building Products and Materials Used in Construction and Renovation

**Definition:** This category includes products or materials used to construct, renovate, or repair any building designed or intended as a commercial office, industrial, or child-occupied space where people work or learn or that is designed for human habitation or that contains a habitable space. Building products are further described as permanent or semi-permanent materials or components that are typically affixed to, or comprise an integral part of, a building. This category does not include appliances, such as ranges, refrigerators, dishwashers, clothes washers and dryers, air conditioners, humidifiers, and dehumidifiers. Some products in this category may also be captured by the Paints category discussed later in this Work Plan.

**Examples:** Artificial turf, cabinets, countertops, wall-to-wall carpets, laminates, and wood products that are permanently or semi-permanently fixed in place by adhesives, tack strips, or by other means or that are designed to remain in place once installed.

**Inclusion in previous Work Plans:** 2015-2017, 2018-2020, 2021-2023

### *Rationale*

Because people spend so much of their lives in the built environment and interacting with building products, they experience ongoing, lifelong exposures to chemicals in building products and materials. Children are particularly sensitive to the adverse effects that can result from these exposures. Construction workers, who continually come in contact with the materials used in the construction, renovation, and repair of built environments, may also have higher exposure levels to chemicals found in these products and materials than the population at large (Snashall 2005; OSHA 2012). Additionally, Candidate Chemicals can migrate from these products, which can lead to exposure concerns for the environment and wildlife (CSQA 2015; Washington State Department of Ecology 2017).

## ***Completed and Ongoing Work***

We [adopted regulations to list Spray Polyurethane Foam Containing Unreacted Methylene Diphenyl Diisocyanate \(MDI\)](#) as a Priority Product in July 2018, for which we are now in the Regulatory Response stage of the SCP regulatory process. Additionally, we listed [Paint or Varnish Strippers Containing Methylene Chloride](#) and [Carpets and Rugs Containing PFASs](#) as Priority Products in January 2019 and July 2021, respectively. We have also prepared a formal regulatory [proposal to list Paint and Varnish Strippers and Graffiti Removers Containing N-methylpyrrolidone](#) as a Priority Product; further work on this proposal is currently on hold pending U.S. EPA action.

In the 2021-2023 Work Plan, we expanded this product category to include products or materials used in outdoor settings such as recreational fields, community centers, parks, playgrounds, stadiums, day care centers, and schools. The expanded category includes artificial turf, which we have since begun to evaluate. Artificial turf is a synthetic surface material engineered to mimic the appearance of natural grass and can be used for lawns, sports fields, landscaping, interior design, playgrounds, pet parks, and building rooftops (STC 2011; STC 2022). This product has become an increasingly popular (Jastifer et al. 2019), alternative to fields and lawns in California since it does not require irrigation, fertilizer, pesticide application, or mowing (STC 2022).

We were prompted to evaluate this product by concern expressed by many stakeholders about PFASs and other Candidate Chemicals used in artificial turf. This began in 2017 when, during public comment on our [proposed regulation to list Carpets and Rugs Containing PFASs as a Priority Product](#), we received multiple public comments concerning artificial turf. While there are numerous reports regarding the presence of many Candidate Chemicals in artificial turf, data has emerged regarding the frequent presence of PFASs in these products (Lerner 2019; Abel 2019; Ecology Center 2019; RTI Laboratories 2019a; PEER 2019; RTI Laboratories 2019b). Manufacturers of artificial turf may use PFASs as an aid in the molding and extrusion of the plastic blades, or PFASs may be applied to the finished product to enhance surface properties (Kulikov 2005; Lambert and Plume 2007).

[Assembly Bill 1423 \(2023, Schiavo\)](#) would have banned artificial turf containing PFASs in California but was vetoed. We will continue our evaluation of both PFASs and other Candidate Chemicals in artificial turf. We plan to share our preliminary screening research findings in early 2024. Information gathered from the workshop and comment period will assist in our prioritization of Candidate Chemicals in artificial turf for potential regulation during the 2024-2026 Work Plan cycle.

## Future Work

We anticipate researching a variety of products in this category that contain Candidate Chemicals that may cause or contribute to adverse impacts to sensitive subpopulations.

One example is engineered stone, which contains Candidate Chemicals that may disproportionately impact young workers of Latin/Hispanic descent who cut, polish, and install this product in California buildings (UCSF 2023; UCLA 2023; Los Angeles Times 2023).



## Children's Products

**Definition:** Our definition of this product category is based on the [state of Washington's definition](#) of "Children's Product," which includes any of the following products primarily intended for, made for, or marketed for children under the age of 12:

- 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.
- Products designed or intended to be worn as clothing or footwear.
- Portable infant or child automobile safety seats.

In our previous Work Plan, we defined "children's products" to exclude apparel and footwear. While we have not yet prioritized specific children's products to regulate, we have decided to include both clothing and footwear in the definition of this product category, based on research that indicates these products can be significant sources of children's exposure to phthalates.

**Examples:** Developmental and educational toys, hair and skin products intended for children and infants, bracelets, teething rings, sippy cups, raincoats, jelly sandals, and booster seats.

**Inclusion in previous Work Plans:** 2021-2023

### ***Rationale***

Among the Candidate Chemicals found in children’s products are carcinogens, developmental toxicants, endocrine disruptors, immunotoxicants, and neurotoxicants. Children’s product manufacturers have reported the presence of chemicals with these hazard traits in their reporting to the states of Oregon and Washington (IC2 2020). Children under the age of 12, especially infants and toddlers, may be more susceptible than adults to adverse impacts from exposures to hazardous chemicals. Childhood is a critical period for development, so exposure to environmental contaminants can have adverse consequences later in life. Furthermore, the hand-to mouth behavior of very young children, their significant amount of time spent crawling and in close proximity to indoor dust sources, and their bodies’ high surface-area-to-volume ratios can increase their potential exposures to chemicals in consumer products (Negev et al. 2018).

### ***Completed and Ongoing Work***

We added Children’s Products as a new category for the 2021-2023 Work Plan. During that cycle, we conducted a high-level review of chemicals in children’s products to determine which products and Candidate Chemicals to prioritize for additional research. We reviewed chemical and product data for 7,460 children’s products that had been reported between 2018-2022 to the Interstate Chemicals Clearinghouse (IC2) High Priority Chemicals Data System (HPCDS). We also conducted a systematic literature review related to chemicals in children’s products. Our analysis found 199 Candidate Chemicals across 18 product categories (e.g., toys and games) containing 280 product types (e.g., action figures). Based on our evaluation, we identified three chemicals or chemical classes as high priority for further research: phthalates, formaldehyde, and styrene. We selected these chemicals based on their prevalence in products, the availability of existing research, and the severity of their hazard traits.

During the 2021-2023 Work Plan cycle, we also initiated a collaborative project with the University of Michigan to assess children’s exposure to endocrine disruptors in consumer products. This ongoing project includes conducting a comparative exposure assessment of bisphenols in toys, an aggregate and cumulative exposure assessment of parabens and other endocrine disrupting chemicals in children’s personal care products, and developing a user-

friendly modeling tool for alternatives analysis. Work on the project is scheduled to conclude during the 2024-2026 Work Plan cycle.

### **Future Work**

For the 2024-2026 Work Plan, we plan to perform detailed research on phthalates, formaldehyde, and styrene in children’s products. We may also conduct additional chemical or product research, such as further researching bisphenols or parabens, once our collaboration with the University of Michigan is complete.



### **Paints**

**Definition:** This category includes liquid, paste, or powder products applied to surfaces for decoration or protection that adhere to the underlying material, forming a solid film (Stoye and Freitag 1998). Liquid paint is a suspension of pigment particles in a liquid, composed of a binder, a volatile solvent, and additives (IARC 2012). The volatile components of liquid paint evaporate after application as the film dries, while the binder adheres the pigment in the dry film to the surface (IARC 2012). Powder paints are solvent-free and are applied to surfaces by electrostatic spraying or by dipping components into the powders (Stoye and Freitag 1998). Paste paints use a dispersant such as a polymer solution, a surfactant solution, or a solvent to prevent the pigments from clumping; this pigment paste requires mixing with a binder, additional solvent, and additives prior being applied to a surface (Schoff 2020).

**Examples:** Interior and exterior building paints; automotive paints; ship and boat paints; paints used on fixed and floating platforms, floating storage units, and offshore loading structures that are in contact with surface waters; and arts and crafts paints.

**Inclusion in previous Work Plans:** Paints were captured in the Building Products and Materials Used in Construction and Renovation category included in the 2015-2017, 2018-2020, and 2021-

2023 Work Plans. We have made Paints its own category in this Work Plan to highlight our intention to evaluate it.

### **Rationale**

Due to the large market presence and widespread use of paints, there may be potential for exposures to the Candidate Chemicals they contain, and for those exposures to cause or contribute to significant and widespread adverse impacts to workers, children, the general public, and aquatic and terrestrial organisms. In 2017, 137 paint manufacturers in California generated more than \$1.5 billion in sales revenue (U.S. Census Bureau 2017a). In the U.S., 1,206 paint manufacturers generated more than \$27 billion in sales revenue in 2017 (U.S. Census Bureau 2017b). In 2022, U.S. paint and coatings manufacturers produced 1.36 billion gallons of paints and coatings (Statista 2023).

Candidate Chemicals in paints are linked to carcinogenicity, reproductive toxicity, developmental toxicity, neurotoxicity, endocrine disruption, respiratory toxicity, and dermal toxicity (IARC 2012). PFASs have been detected in approximately half of the paints tested in two separate studies (Cahuas et al. 2022; Healthy Building Network 2023). Additional Candidate Chemicals that have been reported in various components of paints are listed in Table 1 below.

*Table 1. Candidate Chemicals that have been reported in various components of paints.*

<b>Paint Component (% of paint by weight)</b>	<b>Candidate Chemicals Reported in Component</b>	<b>Citation</b>
Binders (20%-60%)	Formaldehyde, 4,4-methylenedianiline, methyl methacrylate, acrylic acid, ethyl acrylate, styrene, and BPA	IARC (2012)
Solvents (solvent-rich paints containing 20%-50% organic solvents or waterborne paints containing 1%-10% organic solvents)	Benzene, toluene, xylenes, and methyl ethyl ketone	U.S EPA (2007), IARC (2012)
Pigments (3%-60%)	Components of azo pigments such as 4-aminobiphenyl, benzidine, 2-naphthylamine, and 4-chloro-o-toluidine	IARC (2012)
Additives (0.1%-5%)	Dibutyl phthalate, polychlorinated biphenyls, tributyl phosphate, mercury compounds, and pentachlorophenol	IARC (2012)

Microplastics and other harmful chemicals from paints may have adverse impacts on aquatic life (Turner 2021; Prasittisopin, Ferdous and Kamchoom 2023). Degraded paint coatings on buildings and road markings can release microplastics into the environment, as can unused



paints in landfills. These microplastics can end up in surface waters and ground water through urban runoff, water treatment facilities, or atmospheric transport (Gaylarde, Neto and Da Fonseca 2021; Turner 2021; Prasittisopin, Ferdous and Kamchoom 2023). Microplastics are also released from marine paints used on coastal platforms, commercial vessels, boats, and ships through weathering, disturbance, and water erosion (Gaylarde, Neto and Da Fonseca 2021; Simon et al. 2021; Turner 2021). Additionally, microplastics can be released directly into surface waters during spills from the re-painting and maintenance of leisure boats and commercial vessels (Gaylarde, Neto and Da Fonseca 2021).

Children may be exposed to harmful chemical ingredients in arts and crafts paints, such as heavy metals (e.g., manganese, cobalt, nickel, zinc, arsenic, cadmium, and lead) and VOCs (e.g., benzene and toluene) (WSU 2014; OEHHA 2019a; CPSC 2021; Khan et al. 2021).

Professional painters and some autobody shop workers paint more frequently and for longer periods of time than the general population and, consequently, have greater exposure to chemicals such as VOCs and PFASs (Cahuas et al. 2022; Ghosh et al. 2023). If women employed as painters or autobody shop workers become pregnant, their fetuses may be exposed *in utero* to harmful chemicals from paints. Occupational exposure to harmful chemicals in paints may cause adverse effects. Multiple studies have shown increased incidence of or mortality from lung cancer, urinary bladder cancer, and mesothelioma (i.e., cancer of the tissue that covers internal organs) in painters, as compared with the general population (IARC 2012). Other studies have shown that painters and auto body shop workers who were exposed to solvents in paints, such as xylenes, ethylbenzene, and toluene, experienced adverse impacts on their respiratory systems and had increased potential for developing occupational asthma from exposure to isocyanates in paints (Pronk et al. 2006; Dao and Bernstein 2018; Hwang, Lee and Park 2018; Ghosh et al. 2023).

Paints are widely sold and used in California. Therefore, we are concerned about potential exposures of workers, children, and the general public, as well as aquatic and terrestrial organisms, to the Candidate Chemicals in paints. We plan to further engage with stakeholders through public workshops and other meetings to compile additional information about the identity, exposure potential, and adverse impacts of chemicals in various paint products.





## Products that Contain or Generate Microplastics

**Definition:** This product category encompasses any consumer product that may contain or generate microplastics during its product life cycle.

At a [public workshop](#) in June 2023, we [proposed adding microplastics to our Candidate Chemicals List](#) with the following definition: “solid polymeric materials, to which chemical additives or other substances may have been added, that are particles having at least three dimensions that are less than 5,000 micrometers. Polymers derived in nature that have not been chemically modified (other than by hydrolysis) are excluded.” We are required to go through the formal rulemaking process and public comment period prior to finalizing the proposed definition of microplastics. Additionally, we may make changes to our initial proposed definition of microplastics based on public input.

Microplastics can be classified under two main categories:

- Primary microplastics including, but not limited to, microbeads or nurdles, that are manufactured and intentionally added to products.
- Secondary microplastics that arise from the degradation of plastic products, such as plastic bags or water bottles.

**Examples:** Consumer products such as plastic packaging, synthetic clothing and textiles, cigarette filters, tires, and paints may release microplastics during their product life cycle.

### *Rationale*

In our 2021-2023 Work Plan, we identified the potential for products to generate release of microplastics to the environment during their use phase or end-of-life as one of the Work Plan’s five “priorities and considerations for implementation.” Because microplastics were not Candidate Chemicals, we were unable to regulate products that contain or generate them as

Priority Products. We have since [proposed regulations that would add microplastics to the Candidate Chemicals List](#). This rulemaking would allow us to propose Priority Products based on their potential to release microplastics and expose humans or environmental receptors, if we found that such exposures could contribute to or cause harm.

A wide variety of consumer products release microplastics. Microplastics are ubiquitous, persistent, and mobile in the environment and may cause or contribute to adverse human health and ecological impacts. Given the concerns about human exposures and environmental release of microplastics, we have initiated preliminary screening research on products that can release microplastics concurrently with our work to add them to our Candidate Chemicals List.

## PRODUCT CATEGORIES INTENDED FOR EVALUATION

This section discusses product categories we plan to begin evaluating during the 2024-2026 Work Plan cycle. Depending on future priorities and other commitments within the SCP Program, we may not be able to evaluate all these categories during this current Work Plan cycle. However, it is possible that products identified from categories in this section could proceed to public workshops or proposed Priority Products faster than the categories in the previous section due to shifting priorities and resources or availability of new information. While it is challenging to anticipate these changes, we will update our [SCP Timeline](#) quarterly to provide the latest information related to new and ongoing work.

### Motor Vehicle Parts, Accessories, Maintenance, and Repair Materials

**Definition:** Products in this category consist of any component of or for a motor vehicle, including its interior accessories and materials. This includes coatings, elastomers, adhesives, and other materials for holding together interior accessories, as well as maintenance and repair materials.

**Rationale:** Motor vehicles are complicated products that contain many chemicals with many potential routes of exposure. Some of these exposures have the potential to cause or contribute to harm to humans and the environment. For example, volatile organic compounds (VOCs), which are often toxic, may be released into the air inside vehicle cabins, where Californians spend more than 6% of their time (Klepeis et al. 2001).

Table 2. Some potential Candidate Chemicals that may be present in motor vehicle parts

Chemical	Motor Vehicle Parts	Citation(s)
Vinyl chloride	Plastic parts	U.S. EPA (2000), ATSDR (2023)
Phthalates	Upholstery, floor mats, seat covers, artificial leather made with polyvinyl chloride (PVC or vinyl), adhesives, sealants, paints, and wire and cable coverings	OEHHA (2017), OEHHA (2019)
Flame retardants	Plastic components of the powertrain, battery casings, adhesives, coatings, textiles, seat foams, thermal and acoustic insulation foams, communication systems, connectors, relays, printed circuit boards, wires, cables, gaskets, hoses, armrests, headliners, seat backs, seat cushions, sun visors, trim panels, air intakes, manifolds, pumps, and covers for cams and valves	Swanson (2018), ICL Group (2021)
PFASs	Textiles and upholstery, sealants and adhesives, plastics and rubber, paints and coatings, sealants and bearings, cables and wires, automotive waxes, windshield wiper fluid, cylinder head coatings and hoses, fuel lines, steel hydraulic brake tubes	Glüge et al. (2020)
Asbestos	Insulation, housing for air conditioning, spark plugs, brakes (brake pads, shoes, and lining), gaskets, clutches, hood liners, valves, heat seals packing, mufflers, muffler repair compound, soundproofing, undercoating, body filler compound, floor insulation, firewall insulation, woven asbestos backing, stripes	OEHHA (2019b), Nicholl (2021)
Lead	Brake materials and other parts	OEHHA (2019)
Chloroprene	Adhesives, caulks, wire and cable coatings, and other vehicle parts and materials	OEHHA (2019c)
Styrene	Body fillers, etc.	3M (2023)
Isocyanates	Seats, coatings, bed liners, and other flexible materials	Oregon OSHA (2006), Specialty Products, Inc. (2012), Rhino Linings Co. (2017), Old World Industries, LLC (2019), ACC (2020)

For example, “new car smell” results from off-gassing of VOCs from many petroleum-based products, including vinyl, plastic, and foam in seats, dashboards, and door panels (Toyota of Seattle 2018) (UL Solutions 2015). Air inside the cabins of new cars may contain vinyl chloride at higher levels than detected in ambient air, which may be the result of vinyl chloride off-gassing from new plastic parts (U.S. EPA 2000; ATSDR 2023). Vinyl chloride is a carcinogen and liver toxin (ATSDR 2023). Other harmful VOCs that make up the new car smell include toluene, acetaldehyde, benzene, styrene, formaldehyde, and xylenes (UL Solutions 2015; Toyota of Seattle 2018).

Semi-volatile organic compounds (SVOCs), such as phthalates (OEHHA 2017; OEHHA 2019b) and flame retardants (Swanson 2018; ICL Group 2021) have been found at elevated levels in dust collected from motor vehicle interiors (Ali et al. 2021; CARB 2023). SVOCs partition both in the air (where they can be inhaled) and on surfaces in the form of dust, which can be ingested or inhaled (Ali et al. 2021; CARB 2023).

Flame retardant chemicals are ubiquitous in motor vehicles, and many of them are Candidate Chemicals, such as polybrominated flame retardants and organophosphate esters (Dubowski, Inibtawi and Broday 2018; Reddam et al. 2020). They are integrated into almost every design feature of a modern vehicle (see Table 2), as automakers use flame retardants to meet industrial and regulatory fire safety standards (Swanson 2018). Studies have detected elevated levels of flame retardants in dusts collected inside vehicles (Dubowski et al. 2018) and from wrist bands on people who were exposed to dusts inside vehicles (Reddam et al. 2020). In the future, automobiles will potentially contain even more flame retardants due to the demand for more retardant-containing plastic components to reduce weight and increase energy efficiency (ICL Group 2021). Exposure to flame retardants can put passengers, particularly children, at risk for serious health issues such as cancer, diabetes, and developmental disorders (Team SR4K 2022).

The presence of polymeric and non-polymeric PFASs in automobile components and repair and maintenance materials has been well documented (Table 2) (Ameduri 2020; Glüge et al. 2020; Bulson, Remucal and Hicks 2023) (Bulson, Remucal and Hicks 2023). Fifteen groups of PFASs remain on the Global Automotive Declarable Substance List, including PFOA and PFOS (GASG 2023). By one estimate, use of PFASs in vehicle components may more than quadruple in the future, from 350 g of PFAS polymers per automobile currently to 1,500 g. Another study points out that PFAS concentrations will also increase in the stock of vehicles in end-of-life stages (e.g., salvage, dismantling, and/or repurposing of components) (Bulson, Remucal and Hicks 2023).

Motor vehicle parts and repair materials may expose workers and do-it-yourselfers (DIYers) to hazardous chemicals. Chemicals such as chloroprene, asbestos, lead, phthalates, and styrene have been documented in a wide range of motor vehicle parts or repair parts (Table 2) and may lead to exposure to those who repair vehicles. For example, the U.S. National Institute for Occupational Safety & Health (NIOSH) has issued warnings on worker exposure to spray-on truck bed liner applications, which contain isocyanates that may cause asthma or death (NIOSH 2006). Although personal protective equipment is now required for these workers, it is often insufficient to eliminate exposure to isocyanates (Guo 2017).

Should we move forward in proposing a Priority Product related to motor vehicles, any alternative to a Chemical of Concern in a Priority Product must meet all functional and legal requirements of the product. This includes any applicable specifications, performance standards, or other requirements under state or federal law. The SCP Regulations cannot restrict the use of a Chemical of Concern, or require the use of alternative that would compromise a Priority Product's compliance with health and safety requirements.

### ***Motor Vehicle Tires***

Motor vehicle tires were added to the 2021-2023 Work Plan to address the concern that tire wear particles, generated by abrasion as tires roll along the road, can carry significant amounts of chemicals into the environment. We approved a petition received from the California Stormwater Quality Association to list [Motor Vehicle Tires Containing Zinc](#) as a Priority Product. The petition was based on zinc's aquatic toxicity and its levels in California waters. Additionally, we released a [Rationale Document for Motor Vehicle Tires Containing Zinc](#) in March 2021 and held a public workshop on July 28, 2021. We also plan to begin the process to adopt regulations adding Motor Vehicle Tires Containing Zinc to the Priority Products List in 2024.

Additionally, an anti-degradant used in tires – N-1,3-dimethylbutyl-N'-phenyl-p-phenylenediamine (6PPD) – rapidly emerged as a significant concern during the 2021-2023 Work Plan cycle due to acute toxicity, the mortality of endangered salmon species, and the importance of salmon to California Native American Tribes. A transformation product of 6PPD, 6PPD-quinone, causes urban runoff mortality syndrome (URMS) that results in mass die-offs of coho salmon (Tian et al. 2021). In October 2023, we became the first government agency to regulate 6PPD when we adopted [Motor Vehicle Tires Containing 6PPD](#) as a Priority Product.

In this Work Plan cycle, our work on motor vehicle tires will be focused on reviewing Alternatives Analyses and implementing subsequent regulatory responses on 6PPD in Motor Vehicle Tires, as well as listing Motor Vehicle Tires Containing Zinc as a Priority Product through

rulemaking. In addition, we will continue to monitor [Other Tire-Derived Chemicals of Interest](#) that have the potential to adversely impact human health or the environment.

## Food Contact Articles

**Definition:** Based on stakeholder feedback,<sup>4</sup> we have revised and expanded this category to include all products that are (1) intended to be used with food and (2) come in contact with a food product at any stage of its life cycle, including processing, packaging, preparation, cooking, serving, and transportation. This definition is similar to the [U.S. Food and Drug Administration's \(FDA's\) definition](#) of food contact articles. This product category includes only products that are intended to be used with food, such as pots and pans; food packaging, such as cans and plastic wrap; utensils; cutting boards; and coffee machines.

**Rationale:** Products in this category have been documented to result in exposures to chemicals in the product via food (Hahladakis et al. 2018). In two studies, meat cut on plastic cutting boards was contaminated with microplastic particles (Habib et al. 2022a; Habib et al. 2022b). Styrene migrates into food products that are packaged with polystyrene packaging (Tawfik and Huyghebaert 1998; Pilevar et al. 2019). An observational study of olive oil container materials found that concentrations of BPA, a known endocrine disruptor, were higher in olive oil stored in plastic containers (polyethylene, high-density polyethylene, polypropylene, or other unspecified plastics) than in oil stored in stainless steel containers (Abou Omar et al. 2017).

We evaluated several Candidate Chemicals in food packaging during the 2018-2020 Work Plan cycle: PFASs, bisphenol A (BPA), ortho-phthalates, and styrene. We shared our findings in a series of public workshops in [2019](#) and [2020](#). For a variety of reasons, some of which have been published in decision documents ([PFASs](#) and [ortho-phthalates](#)), this work did not lead to designation of any new Priority Products.

In response to stakeholder requests, and because some products in this category have been observed to leach chemicals into food, we plan during the 2024-2026 Work Plan cycle to initiate screening research into this now-expanded category.

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<sup>4</sup> During a series of comment periods on [ortho-phthalates](#), [BPA](#), and [PFASs](#) in food packaging, concerned stakeholders asked us to further expand this product category to include all materials that come in contact with food.



## Electronics

**Definition:** This category includes computer and peripheral equipment, communications equipment, audio and video equipment, semiconductors, and household appliances. Specific examples include:

- Electronic products with plastic enclosures, such as televisions, desktop computers, monitors, laptops, tablets, cellphones, phones, remote controls, and printers.
- Electronic products with touchscreen surfaces, such as tablets, cellphones, touchscreen monitors, and digital home appliances.
- Electronic products with semiconductors and related solid-state components, such as integrated circuits, memory chips, and microprocessors.
- Electronic protective coatings for touchscreens, lenses, and glass-like surfaces.

**Rationale:** The external components of many electronic products, such as plastic enclosures, contain Candidate Chemicals such as organohalogenated flame retardants and PFASs (Garg et al. 2020; Washington State Department of Ecology 2022; Lay et al. 2023; Toxic-Free Future 2023). These chemicals may come in direct contact with users, wear off over time, and migrate into indoor environments during product use (Toxic-Free Future 2023). In addition, semiconductor manufacturing may be a source of occupational and environmental exposure to Candidate Chemicals (Ladou and Bailar 2007; Rim 2022; Sharma 2023).

## Products Used or Produced by Metal Plating and Finishing Facilities

**Definition:** Metal plating and finishing are manufacturing techniques used to apply an exterior coating to metal to improve an object's surface properties, including corrosion resistance, wear resistance, thermal protection, and aesthetics. These techniques – which include galvanizing, anodizing, thermal spraying, and electroplating – use various surface treatment products and aids to impart the desired properties to the metal surface. These products and aids include organic and inorganic mixtures and heavy metal compounds. Examples of products used by these facilities include plating bath solutions, vapor suppressants, etching agents, solvents, reducing agents, and catalysts. Examples of products produced by these facilities include guardrails, roofs, gutters, cross-linked fences, light fixtures, utensils, and jewelry.

**Rationale:** Many substances used in metal plating and finishing can pose risks to people's health and the environment, since they require direct handling by employees in manufacturing facilities and can potentially be released into the surrounding environment. During manufacturing processes, releases into the air, water, and soil can occur through air emissions, wastewater effluents, waste disposal, and spills. Specific examples of Candidate Chemicals used

in the metal plating and finishing industry include metal compounds such as zinc, chromium, lead, nickel, and copper or corrosive chemicals such as nitric acid, sulfuric acid, ammonia, cyanide compounds, nickel sulfate, and halogenated solvents. We are concerned about exposures of workers and surrounding communities to chemical products used in metal plating and finishing processes and the potential for associated adverse impacts. Emissions from these activities may release toxic chemicals that can contaminate surrounding air, water, and soil and adversely impact nearby people and wildlife (Tyagi 2014). Metal plating and finishing facilities in California are often located in or near “disadvantaged communities”<sup>5</sup> (OEHHA 2021) (Figure 1). Exposure to chemicals associated with metal plating and finishing processes raises significant concerns in surrounding communities, given that they may already be burdened with high pollution levels and adverse socioeconomic conditions (Salam and Sultana 2022).

Targeted pollution management, including reducing the use of Candidate Chemicals, can significantly reduce pollution exposure to surrounding communities and workers (Collins et al. 2023). For example, chemical or materials substitution can be applied in production processes, such as parts preparation, process baths, rinse operations, and others (DTSC 1993).

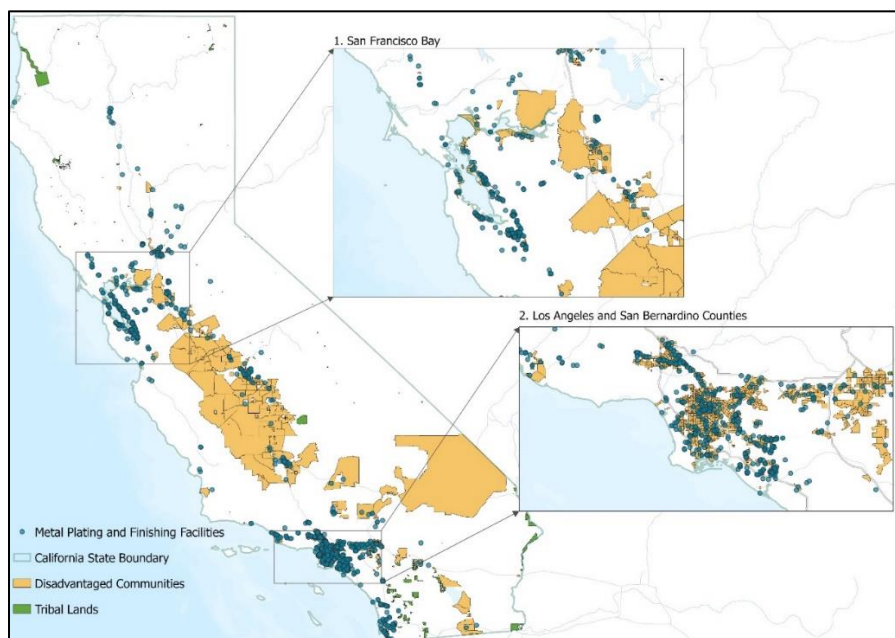


Figure 1. Spatial distribution of metal plating and finishing facilities in California. More than 60% of metal plating and finishing facilities are located within “disadvantaged communities.” Data acquired from CalEPA (2022) and U.S. EPA (2023).

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<sup>5</sup> CalEPA defines “disadvantaged communities” in its [Final Designation of Disadvantaged Communities \(May 2022\)](#) as those that experience the most geographic, socioeconomic, public health, and environmental hazard criteria based on [CalEnviroScreen4.0](#).

## Pet Care Products

**Definition:** Pet care products are used in the care of household animals, including to maintain their health and well-being. Examples include toys, litter, odor-control products, pet food packaging, wipes, pads, pet beds, and pet bandages.

**Rationale:** Pet care products contain Candidate Chemicals that may impact the health of pets or humans who live with them, including young children. For example, recent testing by the Environmental Working Group (EWG) found PFASs in pet food packaging, contributing to PFAS exposure to pets (EWG 2022). Other pet care products, such as toys, may contain harmful chemicals such as phthalates, which have been found in blood and urine samples of pets at higher levels than in humans (EWG 2008). We may evaluate this product category due to the presence of various Candidate Chemicals in pet care products.

## Sporting and Athletic Equipment

**Definition:** Products designed to be used for athletics, exercise/fitness, and outdoor recreation (e.g., fishing, hunting, camping, or hiking). These products may require direct handling by users, be cast/discharged into the surrounding environment, or remain stationary. Specific examples include exercise mats, balls, rackets, helmets, fishing sinkers and weights, balance trainers, ab and core toners, resistance bands, free weights, treadmills, and bicycles.

**Rationale:** Perspiration and friction during sports activities can increase dermal exposure to Candidate Chemicals in sporting and athletic equipment (BEUC 2012). Since sportswear is typically in direct contact with the body during use, there is potential for dermal exposure to certain Candidate Chemicals, especially among children and professional athletes (BEUC 2012; Anderson and Meade 2014). These products may also release Candidate Chemicals to the environment during their life cycle, including manufacturing, transportation, use, and end-of-life.

We are particularly interested in products in this category, including the above examples, that can be made in whole or in part from polyvinyl chloride (PVC). PVC is made from the Candidate Chemical vinyl chloride (CAS 75-01-4), which is a carcinogen (NIH 2015; DTSC 2023). In addition, PVC can contain Candidate Chemicals both as manufacturing impurities (i.e., vinyl chloride monomer) and as ingredients that are intentionally added to enhance the performance of the material (i.e., PFASs, phthalates, lead, cadmium, and tin) (HCWH Europe 2021).

## IMPLEMENTATION OF THE WORK PLAN

This Work Plan highlights the continuity between our prior and current work evaluating chemicals in consumer products and summarizes the work we plan to do over the next three years. Initially identifying a product category in a Work Plan is the first of many steps that may ultimately lead to a regulatory response. Each of these steps – screening research, public engagement, developing a Product-Chemical Profile, rulemaking, and Alternatives Analysis, as well regulatory response and compliance and enforcement – requires significant resources. Our goal is to initiate or adopt five Priority Product regulations each fiscal year, and our progress will be tracked in [DTSC's Strategic Plan Dashboard](#). We anticipate that much of our product evaluation during the 2024-2026 Work Plan cycle will be a continuation of work that is underway. Products we began researching during previous Work Plan cycles have now advanced to the compliance and enforcement phase of our regulations. In addition, preliminary screening research we began during previous Work Plan cycles has led to rulemaking and to informal proposals for future Priority Products, as well as to public consultation regarding those products.

Future Priority Products from the product categories in this Work Plan will only be identified after robust scientific review and consultation with a wide range of stakeholders, including industry experts, academic researchers, government agencies, and nongovernmental organizations. Multiple iterations of research and stakeholder engagement may be necessary to properly identify and define products in advance of rulemaking. We will continue to seek and welcome input from a wide variety of sources. Engagement with all stakeholders has been, and will continue to be, critical for us to successfully implement our Work Plans.

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## APPENDIX A: REPORT PREPARATION

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## APPENDIX B: TERMINOLOGY

**Safer Consumer Products Regulations** – Refers to Chapter 55 of Division 4.5 of Title 22 of the California Code of Regulations.

**Consumer Product** – According to Section 25251 of the California Health and Safety Code, “Consumer Product” means a product or part of a product that is used, bought, or leased for use by a person for any purposes. “Consumer Product” *does not include*:

- (1) A dangerous drug or dangerous device as defined in Section 4022 of the Business and Professions Code.
- (2) Dental restorative materials as defined in subdivision (b) of Section 1648.20 of the Business and Professions Code.
- (3) A device as defined in Section 4023 of the Business and Professions Code (i.e., medical/veterinary devices).<sup>6</sup>
- (4) The packaging associated with any of the items specified in items (1), (2), or (3) above.
- (5) A food as defined in subdivision (a) of Section 109935.
- (6) A pesticide as defined in Section 12753 of the Food and Agricultural Code or the Federal Insecticide, Fungicide and Rodenticide Act (7 United States Code Sections 136 and following).

**Priority Product** – The SCP Framework Regulations define a Priority Product as a product-chemical combination identified and listed as a Priority Product under Section 69503.5 of Title 22 of the California Code of Regulations. A product-chemical combination does not formally become a Priority Product until it is added to the Priority Products List through the adoption of regulations. This document sometimes refers to a “proposed” or “potential” Priority Product. The word “proposed” should be interpreted broadly here to apply to a product-chemical

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<sup>6</sup> “Device” means any instrument, apparatus, machine, implant, in vitro reagent, or contrivance, including its components, parts, products, or the byproducts of a device, and accessories that are used or intended for either of the following:

- (a) Use in the diagnosis, cure, mitigation, treatment, or prevention of disease in a human or any other animal.
- (b) To affect the structure or any function of the body of a human or any other animal.

For purposes of this chapter, “device” does not include contact lenses or any prosthetic or orthopedic device that does not require a prescription.

combination that is under consideration prior to adoption in regulation. A proposal could range from an informal announcement at a public workshop to the release of a draft document or the formal publication of a Notice of Proposed Rulemaking.

**Candidate Chemical** – The SCP Framework Regulations identify a set of 23 authoritative lists of chemicals that share specific hazards or have been prioritized for monitoring in environmental media or in people. Any chemical appearing on one or more of these lists is a Candidate Chemical. We maintain a searchable, informational [Candidate Chemicals List](#) that can be accessed via our [CalSAFER website](#). In most cases, when one of the 23 authoritative lists is updated (for example, to add or remove a chemical based on new information), the updates are automatically incorporated into the Candidate Chemicals List, which is updated quarterly.