



Priority Product Work Plan

Three Year Work Plan 2015 - 2017

APRIL 2015

SAFER CONSUMER PRODUCTS BRANCH
DEPARTMENT OF TOXIC SUBSTANCES CONTROL

2

CONTENTS

1.0	Introduction and Work Plan Overview	4
1.1	Overview of Draft Work Plan Comments and Changes	7
2.0	Background and Goal	9
3.0	Process for Category Selection	11
4.0	Product Categories and Classifications	15
4.1	Beauty, Personal Care, and Hygiene Products	17
4.2	Building Products and Household/Office Furniture and Furnishings	20
	4.2.1 Building Products: Painting Products, Adhesives, Sealants, and Flooring	23
	4.2.2 Household, Office Furniture and Furnishings	24
4.3	Cleaning Products	25
4.4	Clothing	27
4.5	Fishing and Angling Equipment	29
4.6	Office Machinery (Consumable Products)	30
4.7	Summary of Product Categories	31
5.0	Implementing the Work Plan	32
	Possible Changes During this Cycle	32
6.0	Appendix - Acronyms and Terminology	34

1.0 INTRODUCTION AND WORK PLAN OVERVIEW

The SCP Program is designed to encourage market shifts toward a green economy.

Launched in 2007, California's Green Chemistry Initiative included six policy recommendations to reduce public and environmental exposure to hazardous chemicals. The Safer Consumer Products (SCP) program is the most prominent pillar of the Green Chemistry Initiative. It is the vehicle to achieve the policy recommendation to "accelerate the guest for safer products."

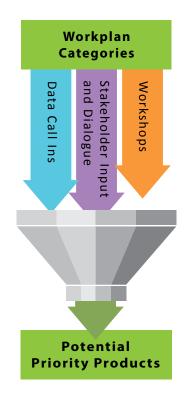
In October 2013, the SCP regulations went into effect, and in March 2014 the Department of Toxic Substances Control (DTSC) proposed the first three Priority Products for which safer alternatives must be

evaluated. In September of 2014, DTSC published its draft Priority Product Work Plan for 2015 – 2017. DTSC held two public workshops to present the Work Plan to the public and get initial stakeholder input. We then accepted written comments on the document during an informal six-week public comment period. Both workshops were well-attended, and we received a total of 344 comment letters covering all aspects of the document (approximately 80 percent addressed the Fishing and Angling Equipment category). Commenters included product manufacturers, chemical

manufacturers, trade associations, other governmental and non-governmental organizations, and private citizens. DTSC would like to thank all of the stakeholders who took time to comment on the draft Priority Products Work Plan so we could improve and strengthen it. We appreciate their engagement, and we remain committed to continued dialogue.

The SCP Program is designed to encourage market shifts toward a green economy. It's with that intent that we are outlining the direction of the program for the next three years. Publication of this plan allows us to begin research and investigation into the seven product categories in the plan. These categories touch many aspects of our daily lives. Our work for the next three years will be to move from these broad categories to specific product-chemical combinations that warrant consideration as potential Priority Products.

A fundamental tenet of California's Green Chemistry Initiative is to maintain a scientific foundation for policy recommendations and decisions. As we developed this Priority Product Work Plan (Work Plan), chemistry, toxicology, and ecology informed our decisions about what product categories to include. We will continue to rely on scientific,



peer-reviewed, authoritative publications in researching product-chemical combinations drawn from the categories in this plan. We will leverage the knowledge and experience within other parts of the California Environmental Protection Agency (CalEPA) – the Office of Environmental Health Hazard Assessment (OEHHA), the State Water Resources Control Board, the Department of Pesticide Regulation, CalRecycle, and the California Air Resources Board. We will also reach out to other California governmental partners with deep subject matter expertise with respect to chemicals in consumer products, such as the California Department of Public Health (CDPH). We will continue to work closely with the United States Environmental Protection Agency (U.S. EPA) to use their tools, information, and resources in an efficient and collaborative manner. And



we will continue to work with the Green Ribbon Science Panel (GRSP) to develop sound decision-making approaches that reflect the current state of the science.

We will augment our scientific understanding with available information about the chemicals and products of interest. In selecting the proposed initial Priority Products, we relied exclusively on publicly-available information for our decision making. We will implement this Work Plan and make future selections of Priority Products after input and dialogue with the people who design, manufacture, and use these products. As part of that process, our research will include information gathered from non-public sources. We may solicit information from manufacturers and their supply chain partners as well as trade associations and others with relevant expertise. We may also make targeted information requests to industry sectors and channels (i.e., data call-ins), and will gather information through public workshops and comment periods. In keeping with our commitment to transparency, we will make as much of this information as possible publicly available consistent with the protections for trade secrets outlined in our regulations. We expect to engage in discussion with industry experts about product formulations, supply chain considerations, and industrial toxicology studies among other topics that can expand and refine our knowledge for the purposes of selecting Priority Products.

Both non-governmental organizations (NGOs) and state programs requiring ingredient disclosure (e.g., Washington's Safe Children's Product Act and California's Safe Cosmetics Program) have been very active in evaluating product ingredients, researching public health issues faced by certain sensitive sub-populations, and advocating for ingredient transparency. Through this work, they have gained extensive knowledge about consumer products. We will continue to solicit input from NGO stakeholders to inform our decisions.

We believe this plan provides a level of predictability to potential manufacturers, importers, retailers, and other

...this plan provides a level of predictability to potential manufacturers, importers, retailers, and other stakeholders...

stakeholders regarding the types of products that can be considered for evaluation over the next three years. This Work Plan serves as a signal to manufacturers who make products that fall into these categories. We expect that manufacturers will consider the product categories in this Work Plan, in conjunction with the Candidate Chemical list, to evaluate their product portfolios.

The discussion in this Work Plan outlines some of the considerations behind our product category selections. Release of this plan is the first step in identifying the next set of Priority Products. As DTSC researches chemicals and products and engages with our

stakeholders, we are learning, growing, and building a strong foundation for this new program. As we noted in the draft document, the seven selected product categories include hundreds of potential Priority Products. During the three-year cycle covered by this plan, we will continue following a thoughtful and prudent approach. The thorough process envisioned by the statute will limit the number of products we can announce. In 2014, we announced three product-chemical combinations; in 2015, the number will likely be as many as three. As we gain knowledge about the product categories and standardize our product research procedures, we anticipate that we will have the capacity to select more products. Therefore, in 2016 and 2017, we anticipate selecting more than five products each year. As the next few years unfold, we will continue on an ambitious but prudent path working toward the ultimate goal of safer consumer products for our environment and the people of California.

1.1 OVERVIEW OF DRAFT WORK PLAN COMMENTS AND CHANGES

Most of the public comments on the Priority Products Work Plan were requests for clarifications and corrections; we made a number of changes to accommodate these. In addition, DTSC received substantive comments in a number of areas:

- Requests to add product categories (most notably food packaging and automotive products) or refine or drop existing ones, especially building products and fishing and angling equipment;
- Requests to add chemicals to the Candidate Chemicals List (e.g., chlorinated and organophosphate flame retardants) or to narrow the scope of chemicals under consideration; and
- Requests that we prioritize specific products during the Work Plan cycle.

DTSC has made changes to the Work Plan in response to some of these public comments. In other cases discussed below, we did not make a change.

Specific Changes from the September 14, 2014 Draft

While the scope of the final Work Plan is substantially the same as the September 2014 draft, DTSC has made a number of revisions. Many of these changes were made in response to stakeholder comments and suggestions we determined were consistent with our policy priorities, achievable within the constraints of our resources, and appropriate to the scope and purpose of the document. Specifically, we:

- Added additional detail to statements about the number of product-chemical combinations that DTSC intends to propose each year as Priority Products;
- Made edits throughout the document to correct nomenclature and clarify certain points;
- Added carpet padding and insulation as examples in the narrative for the "Building Products" category;
- Added curtains with flame retardants as an example in the narrative for the "Household/Office Furniture and Furnishings" product category;
- Added wall coverings with flame retardants as an example in the narrative for the "Building Products" category;
- Revised the narrative for the "Clothing" product category to clarify that the category does not include protective wear for occupational safety purposes;
- Clarified the scope of the "Office Machinery" product category; and
- Modified the scope of the "Fishing and Angling Equipment" product category.

What Has Not Changed in the Final Work Plan

For a variety of reasons, DTSC did not make some of the changes requested in public comments. Some were outside the scope of the Priority Products Work Plan (for example, adding chemicals to the Candidate Chemicals list); others were not aligned with DTSC's stated policy priorities. A number of other suggestions have merit, but we have opted not to address them now in order to keep the scope of products we consider during this Work Plan cycle both practical and meaningful; however, we intend to revisit these suggestions again in the future. DTSC felt it important to identify policy priorities that would guide our selection of product categories for the Work Plan. (These priorities will also inform our selection of specific product-chemical combinations during the current three-year Work Plan cycle.) While the product categories and policy priorities we have selected are meaningful to protecting public health and the environment, DTSC recognizes that there are many others we could have chosen that are equally compelling.

DTSC does not intend to propose specific candidate Priority Products before doing further scoping research and engaging with stakeholders. The regulations explicitly state that the Work Plan shall identify product categories rather than specific product-chemical combinations. Nevertheless, some of the specific product-chemical combinations proposed by commenters may be candidates for future designation as Priority Products.

We also did not add any new chemicals into the Candidate Chemicals list as part of finalizing the Work Plan; doing so would require adopting new regulations and is well beyond the scope of this document. DTSC has also opted not to add any new product categories to, or remove any categories from, the Work Plan. As with the specific products suggested by some commenters, some of the suggested categories have merit and we may consider pursuing them

in the future.

We also will not add any new chemicals into the Candidate Chemicals List as part of finalizing the Work Plan; doing so would require adopting new regulations and is well beyond the scope of this document.

DTSC has also opted not to add any new product categories to, or remove any categories from, the Work Plan. As with the specific products suggested by some commenters, some of the suggested categories have merit and we may consider pursuing them in the future.

DTSC is grateful to everyone who took the time to attend one or both workshops or submit written comments.

Their participation has made this Work Plan a better document and has supported our commitment to developing it through a transparent process.

2015 - 2017

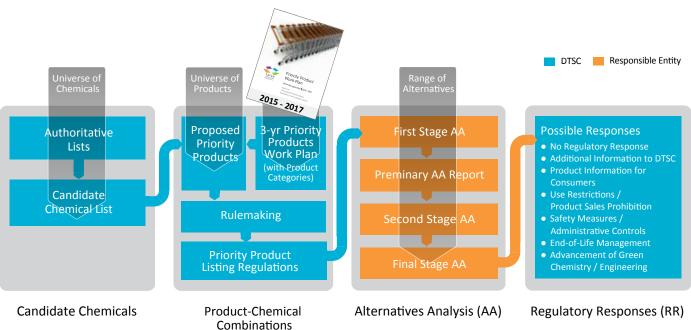
2.0 BACKGROUND AND GOAL

DTSC's Safer Consumer Products regulations¹ require us to issue a Priority Product Work Plan that includes two elements:

- 1. A description of "the **product categories** that the Department will evaluate to identify product-chemical combinations to be added to the Priority Products list during the subsequent three years", and
- 2. A "general explanation of the decision to select the identified product categories for evaluation."

The Work Plan is intended to provide a higher level of predictability regarding potential regulatory actions DTSC will take in the future. The Work Plan does not specifically identify any product-chemical combinations as Priority Products. The plan identifies categories from which we will propose future Priority Products. The figure below shows how the categories in the Work Plan feed in to Priority Product selection. Per the regulations, we may not designate a Priority Product that does not fall into one of these categories. Release of the Work Plan initiates a process that gives stakeholders an opportunity to do two things: participate in the prioritization planning process and provide DTSC with information to make sound prioritization decisions.

The Four-Step Framework for the SCP Regulations



California Code of Regulations, division 4.5, title 22, chapter 55, § 69503.4

This Work Plan covers the period from January 2015 through December 2017. DTSC's next Work Plan, covering 2018 through 2020, will be issued in 2017 – one year before the expiration of the current plan.

There are two scenarios, however, in which DTSC would revise a Work Plan before it expires: 1) if we are instructed to take action on a chemical, product, or both through a legislative mandate or executive order, or 2) if we grant a petition to add a product-chemical combination to the Priority Products list.²

Note: Because the Work Plan does not identify any Priority Products, it similarly does not identify any responsible entities or establish any requirements on manufacturers for compliance with the SCP regulations.

² California Code of Regulations, division 4.5, title 22, chapter 55, § 69504

3.0 PROCESS FOR CATEGORY SELECTION

Priorities

We selected the categories in this Work Plan based on information generated using various screening approaches and in accordance with the many factors identified in the SCP regulations.

In addition, our policy objectives and priorities played an important role in guiding our selection of product categories.

The categories include products that:

- Provide clear pathways for exposure to one or more Candidate Chemicals;
- Contain chemicals that have been detected in biomonitoring studies;
- Contain chemicals that have been observed in indoor air and dust studies;
- May impact children or workers; or
- Contain chemicals that may adversely impact aquatic resources or that have been observed through water quality monitoring.

In selecting product categories, we considered the factors and criteria required by the SCP regulations, including potential exposures, significant adverse impacts or end-of-life effects, as well as the availability of information, other regulatory programs, and safer alternatives. The large number of possible combinations of products, chemicals, and exposure scenarios which might make a product category an appropriate candidate for consideration, as well as the different goals to be served by the SCP regulations (e.g., reducing exposures to sensitive populations versus protecting endangered or threatened species) make it impractical to employ a ranking and scoring system for prioritization. DTSC took a broad approach to choosing the product categories. While our decisions continue to be based on sound science, the breadth of possibilities requires that we also set priorities based on policy.

We used the priorities identified above and our discretion to pick categories. Our regulations identify many factors for evaluating product-chemical combinations and there are other product categories that could have legitimately been chosen. Those categories may be considered in subsequent Priority Product Work Plans.

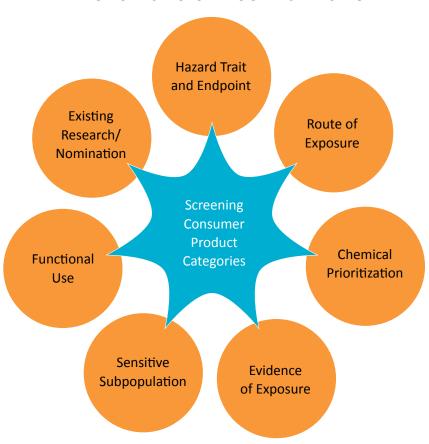
In lieu of a prescriptive process, we used multiple approaches to screen the breadth of consumer product categories. Using several approaches enabled us to look at the statutory and regulatory factors through multiple lenses that might be more or less relevant to a given product category. The various approaches utilized were discussed at the

June 25, 2014 meeting of the Green Ribbon Science Panel³ and are summarized below.

HAZARD TRAIT AND ENDPOINT APPROACH

We considered a hazard trait and endpoint approach, which took into account possible environmental or toxicological endpoints associated with product-chemical combinations within product categories based on pressing public health or ecological health concerns. The range of human health endpoints includes, among others, carcinogenicity, developmental toxicity, and reproductive toxicity. Commonly considered environmental hazard traits include animal or plant toxicity. The California OEHHA has defined the breadth of endpoints and hazard traits for the SCP regulations.⁴

APPROACHES TO CATEGORY SELECTION



ROUTE OF EXPOSURE APPROACH

By their nature, certain products provide direct routes of exposure to consumers during the product's normal use. For instance, products intended to generate vapors, fragrances, or odors are readily inhaled and can become especially problematic if they contain hazardous chemicals. This approach considered how products are used, the frequency and quantity of use, and where the products are used as factors to assess the propensity for exposure to the chemical from the product's use.

CHEMICAL PRIORITIZATION APPROACH

We considered that there might be certain Candidate Chemicals having multiple hazard traits and/or environmental or toxicological endpoints which could be found in a variety of consumer products. One reasonable approach for screening might be to identify potential product categories based on the presence of one of these chemicals.

^{3 &}lt;a href="http://www.dtsc.ca.gov/SCP/GRSPPastMeetings.cfm">http://www.dtsc.ca.gov/SCP/GRSPPastMeetings.cfm

⁴ California Code of Regulations, division 4.5, title 22, chapter 55, § 69501 et seq.

EVIDENCE OF EXPOSURE APPROACH

Evidence of exposure can be demonstrated using results from several types of monitoring. Household dust studies, biomonitoring studies, indoor media surveys, or environmental monitoring – in water, sediment or in biota tissue – provide such evidence. These direct measures of a chemical's presence facilitate our evaluation of potential exposures from products known to contain identified chemicals. Note that although these studies document the presence of chemicals, they do not necessarily identify the source of the exposure.

SENSITIVE SUBPOPULATION APPROACH

We considered product categories relevant to certain sensitive subpopulations as defined in the SCP regulations. Sensitive subpopulations include infants, children, pregnant women, and elderly or other individuals at greater risk of adverse health effects when exposed to chemicals. Workers are also considered to be a sensitive subpopulation because they may be subject to frequent or prolonged exposures to chemicals due to the nature of their occupation.

FUNCTIONAL USE APPROACH

Chemicals that can perform similar functions in consumer products (e.g., bonding, disinfecting, suppressing flames, or cross linking) can be grouped into "functional use" categories. Evaluating consumer products through the filter of functional use may identify categories with similar hazard characteristics, potential exposures, or potential adverse impacts.



2015 - 2017

While our decisions continue to be based on sound science, the breadth of possibilities requires that we set priorities based on policy decisions. elicited from academic scientists, businesses, and NGOs. A number of nominated products were researched extensively but were not included in the proposed Initial Priority Products List. Some product categories were included so that we might pursue these previously-nominated products.

Selecting the product categories in this Work Plan was a deliberative and iterative process of discernment; we collected information using the approaches outlined above, assessed this information through the lenses of our

stated priorities, then continued this cycle of research and evaluation. Thus our decisions on category selection are a byproduct of balancing multiple sources of reliable information and multiple priorities and objectives.

We will continue to apply the policy priorities outlined above in implementing this Work Plan and identifying potential Priority Products. These priorities will guide us as we engage with interested parties and identify information that will help narrow our focus and ability to assess which consumer products might be good candidates for selection. The approaches we use to conduct this research will also evolve as we test and refine our tools and expertise.

4.0 PRODUCT CATEGORIES AND CLASSIFICATIONS

There are many national and international product classification systems, each designed for a specific purpose. In this Work Plan, we have chosen to align our product categories as closely as possible to one of these systems: the Global Product Classification (GPC) standard.⁵ The GPC standard is widely-recognized across industry sectors and throughout supply chains. It uses a hierarchical system for grouping similar products together. The GPC standard is based on a product code called a brick; each brick code represents a category of similar products.⁶ Related bricks are grouped into classes, classes into families, and families into segments. In cases where a GPC grouping is broader than the category we intend to explore, we specify the subset of its products captured in our category.



One group of products of special interest to DTSC – products

for children – does not align well with the GPC taxonomy. While children are a priority sensitive subpopulation for this Work Plan, in the interest of consistency with the GPC standard we have chosen not to designate products for children as a separate product category. Therefore, children's products may be captured under any of several categories in this Plan (e.g., Beauty, Personal Care, and Hygiene Products; Clothing). As we evaluate products within these categories, DTSC will give consideration to products that may expose children to candidate chemicals. For example, special attention might be given to a personal care or hygiene product intended and marketed for a child under the age of 12 within the "Beauty, Personal Care, and Hygiene" category. Each category will be further researched, refined and narrowed through research, stakeholder dialogue, and discussion.

Product Categories of Interest

In the subsequent sections, we briefly describe each of the seven product categories and provide examples of Candidate Chemicals that we know are used in products in each of them. We also identify the functions of some of these Candidate Chemicals in a particular product category.

^{5 &}lt;a href="http://www.gs1.org/gdsn/gpc">http://www.gs1.org/gdsn/gpc

⁶ Some bricks are broken down further into "attributes" and "values."

In identifying potential Priority Products from the categories in this Work Plan, DTSC may identify any chemical that appears on the Candidate Chemicals list, whether or not it is listed here as an example.

Likewise, the chemical examples are not meant to imply that those chemicals mentioned will definitively be evaluated as part of the Work Plan implementation. In certain examples, DTSC has identified a chemical class where not all chemicals in the class necessarily appear on DTSC's Candidate Chemicals list. Unless the group of chemicals appears on the list as a class, only those class members that are Candidate Chemicals can be designated as Chemicals of Concern. Our publication of this Work Plan does not affect the composition of the Candidate Chemicals list nor does it signal our intention to add any specific chemical to it. Therefore, when the Work Plan mentions a chemical group or class as an example, it should be viewed in the context of the Candidate Chemicals list.

4.1 BEAUTY, PERSONAL CARE, AND HYGIENE PRODUCTS

This category includes products designed to be applied to, or used on, the body to satisfy all types of health and beauty needs. Examples include hair care products, skin care products, personal hygiene products, and cosmetics.

Examples of products included in this product category are:

Body Wash and Soaps	Deodorants	Lip Balms and Gloss
Lotions	Ointments	Pomades
Hair Care Products	Cosmetics	Nail Care Products
Sunscreen		

According to surveys, a typical person uses nine or more personal care products each day, some several times a day. Products in this category are typically formulated with multiple ingredients, each added for a specific purpose. In addition to chemicals associated with a product's primary use, these products often include fragrances, colorants, stabilizers, preservatives, and emulsifiers. Some of these ingredients are Candidate Chemicals.

Cosmetics, one of many subcategories, illustrates the very large number of products of potential interest. As of the beginning of 2015, the CDPH Safe Cosmetics Program database included over 45,000 products that contained one or more chemicals listed as a carcinogen or reproductive or developmental toxicant on California's Proposition 65 list, by the International Agency for Research on Cancer (IARC), by the National Toxicology Program (NTP), or by U.S. EPA. These products were reported by 468 unique manufacturers and included 63 different listed chemicals. Cosmetics is only one of the dozens of subcategories of beauty, personal care, and hygiene products. The number of subcategories that could potentially expose people and wildlife to Candidate Chemicals is likely significantly higher.

Using beauty, personal care, and hygiene products involves applying them to the body. Some (e.g., soap or shampoo) are designed to be rinsed off soon after they are applied but others – like lotions, makeup, and hairspray – are designed to be left on the hair or skin and may be reapplied throughout the day, resulting in prolonged or

repeated exposures to their chemical ingredients. Some chemicals in these products can be absorbed through the skin including the scalp. In addition to skin exposure, some products in this category also generate vapors or mists that can be inhaled.

Many beauty, personal care, and hygiene products are washed down drains, either as part of their normal use or when people wash their hands, faces, hair, and bodies. Some chemicals in these products are not completely re-

Hair and nail salon workers, who are often women of child-bearing age, spend many hours per week working with these products.

moved during treatment in wastewater treatment plants and find their way into sewage sludge,⁷ which is often placed on the land, and wastewater effluent, which is discharged to rivers, lakes, or the oceans, exposing wildlife to potentially harmful chemicals.

Determining the chemical composition of beauty, personal care, and hygiene products can be a challenge. While manufacturers of these products often provide a list of chemical ingredients on the package label, they are not required to disclose certain ingredients, including fragrances and flavors. In other cases, a manufacturer that is required to provide notification that their products expose users to hazardous chemicals may fail to do so.

Industry, the general public, and regulators have become increasingly concerned about potential exposure to hazardous chemicals from beauty, personal care, and hygiene products and some have taken actions to limit the use of certain chemicals or increase awareness of chemical ingredients. A small study by DTSC in 2011 of nail products claiming to be free of formaldehyde, toluene, and dibutyl phthalates raised concerns about accurate ingredient disclosure.8 To help nail salon customers make informed choices, California's Healthy Nail Salon Collaborative has partnered with local governments in several California regions — Alameda County, San Francisco, San Mateo County, and Santa Monica — to recognize nail salons that use safer products and practices. At the national level, the Sunscreen Innovation Act (S.2141) was signed into law by President Obama on November 26, 2014. Its intent is to facilitate more sunscreen ingredient disclosure.

Consumers who apply beauty, personal care, and hygiene products directly to their bodies are not the only people who may be exposed to the ingredients. Hair and nail salon workers, who are often women of child-bearing age, spend many hours per week working with these products. Many workers in this sector are potentially impacted; statistics from the California State Board of Barbering and Cosmetology, for June 2011, indicate there were approximately 121,000 full-time licensed nail technicians and 284,000 cosmetologists working in California. The potential exposure of workers

⁷ Kinney, C.A., Furlong, E.T., Zaugg, S.D., Burkhardt, M.R., Werner, S.L., Cahill, J.D., Jorgensen, G.R (2006). Survey of Organic Wastewater Contaminants in Biosolids Destined for Land Application. Environ. Sci. Technol. 40: 7207-7215

⁸ http://www.dtsc.ca.gov/PollutionPrevention/upload/NailSalon_Final.pdf

using products in this category aligned with our policy priority and strongly influenced our selection.

A combination of factors related to our priorities prompted our decision to choose beauty, personal care, and hygiene products:

- The products are designed to be applied to the body, directly exposing users to whatever chemicals they contain.
- Chemical ingredients are sometimes not disclosed on product labels. This impedes consumers' ability to
 make informed decisions to avoid certain chemicals and makes it difficult for workers to know what practices
 to follow to protect themselves from chemical exposure.
- Some of the chemical ingredients are known to be hazardous to people and wildlife.
- Some chemicals used in these products have been detected in humans in biomonitoring studies, although whether or not the source is personal care products is usually unknown.
- These chemicals may pass through wastewater treatment plants and can expose wildlife.

Table 1 identifies several possible Candidate Chemicals that may be evaluated as we work to identify Priority Products from this category. The example chemicals in the table are not intended as a comprehensive list of Candidate Chemicals in this product category. Any Candidate Chemical could be considered as we evaluate our product categories.

Table 1 Potential Candidate Chemicals in Beauty, Personal Care and Hygiene Products

Chemicals or Chemical Classes	Functional Use
Aldehydes, formaldehyde	Cross-linking agent, modifier, preservative
Alkylphenol ethoxylates (APEs)	Surfactant
Azo dyes, coal tars, lead, and lead acetate	Colorant, dyes, pigment
Phthalates	Emulsifier, plasticizer
Triclosan	Antimicrobial
Toluene	Solvent

4.2 BUILDING PRODUCTS AND HOUSEHOLD, OFFICE FURNITURE AND FURNISHINGS



In this section we discuss two distinct product categories together because, when considered together, they encompass so much of our indoor environment – both constructed and furnished. These two categories raise similar exposure concerns (e.g., both include products whose chemical ingredients can concentrate in indoor dust and air) and have considerable overlap in their respective use of Candidate Chemicals. A general discussion of the concerns that are common to both categories is provided, followed by brief discussions defining each of the categories.

Both categories – building products and furnishings – encompass wide ranges of products used by virtually everyone. We have limited the scope of these two categories as follows:

- Building Products: this category is limited to painting products, adhesives, sealants, and flooring.
- **Furnishings:** this category is limited to home and office furnishing products that are treated with flame retardants or stain resistant chemicals or both.

According to the Air Resources Board, Californians spend 87 percent of their time indoors. Consequently, products used to build and furnish indoor working and living spaces have a high potential to cause ongoing exposure to any Candidate Chemcials they contain. Exposure can occur as we breathe chemicals that are emitted from products into the air, or when we absorb chemicals through the skin from direct contact with buildings and their furnishings. Normal wear and tear can degrade building materials and furnishings and create dust. Young children often touch floors or furniture and then put their hands in their mouths, resulting in direct ingestion of dust and the many chemical contaminants that dust has been documented to contain. Flame retardants, stain repellants, plasticizers, phenols and metals have been found in indoor dust studies.

Flame retardants are of particular concern as they have been associated with endocrine disruption and reproductive, neurologic, and immune impairment, as well as cancer. Chemicals that provide stain resistance for fabrics are highly persistent in the environment, and some are carcinogenic. Monitoring studies provide evidence of exposure and

⁹ Report to the California Legislature: Indoor Air Pollution In California. California Air Resources Board, July 2005. Accessed February 8, 2015. http://www.arb.ca.gov/research/apr/reports/l3041.pdf

absorption of these chemicals. More than 50 Candidate Chemicals have been detected in one or more dust studies. Studies by researchers at Duke University found brominated and organophosphate flame retardants in furniture foam and house dust.

Human biomonitoring studies, which identify human exposure by measuring environmental chemicals in human tissues and fluids such as blood and urine, confirm that the chemicals found in dust studies can be found in the body. Biomonitoring studies found high levels of seven different forms of PBDE flame retardants – all of which are Candidate Chemicals – in blood samples taken from California children.¹⁰ ¹¹

An added concern for flame retardants and stain repellents is the potential movement to regrettable substitutes. As concern over older classes of these chemicals (e.g., brominated flame retardants, perfluorooctanoic acid) has grown, newer flame retardants and stain repellents have been developed whose toxicology is, as yet, not as well understood. The SCP regulations' Alternatives Analysis framework will reduce the likelihood that regrettable substitutes will be used.

In a new, well-built house, it takes nearly three hours to fully exchange the indoor air. As a result, volatile and semi-volatile chemicals released from building and home furnishing products can build up in indoor air to levels much higher than those found outdoors. This makes the release of volatile organic compounds from products into indoor air a significant concern. Semi-volatile chemicals applied to products are not chemically bound, but are sprayed onto the materials afterward. Unlike volatile compounds, semi-volatile chemicals are released much more slowly and endure much longer indoors as vapor or airborne particles that tend to stick to

surfaces or settle in dust. Indoor air studies document that a wide range of chemicals – including many Candidate Chemicals – can be found in most homes.¹³

including many Candidate Chemicals – can be found in most homes.¹³

Workers who construct our offices, schools, homes, and institutions have a high potential for exposure to hazardous chemicals in building products. Organic solvents and other volatile chemicals are released from paints, paint strippers, varnishes, coatings, adhesives, and other construction materials as

¹³ J. M. Logue, T. E. McKone, Hazard assessment of chemical air contaminants measured in Residences, Indoor Air 2011; 21: 92–109



¹⁰ Rose, M, DH Bennett, A Bergman, B Fangstrom, IN Pessah and I Hertz-Picciotto. 2010. PBDEs in 2- 5-year-old children from California and associations with diet and indoor environment. Environmental Science and Technology. 2010 Apr 1;44(7):2648-53 http://dx.doi.org/10.1021/es903240g.

¹¹ Windham, GC, SM Pinney, A Sjodin, R Lum, RS Jones, LL Needham, FM Biro, RA Hiatt and LH Kushi. Body burdens of brominated flame retardants and other persistent organo-halogenated compounds and their descriptors in U.S. girls. Environmental Research Environmental Research Volume 110, Issue 3, April 2010, Pages 251–257 http://dx.doi.org/10.1016/j.envres.2010.01.004

¹² http://www.cpsc.gov/en/Safety-Education/Safety-Guides/Home/The-Inside-Story-A-Guide-to-Indoor-Air-Quality/, retrieved August 11, 2014.

of particular concern as they have been associated with endocrine disruption and reproductive, neurologic, and immune impairment, as well as cancer.

they are applied. While these chemical vapors ultimately dissipate, they can become concentrated in indoor air while, and immediately after, the products are used. Workers are at increased risk for exposure because they may use these products frequently and for extended periods of time in indoor environments with low air circulation.

A combination of factors related to our policy priorities gives both building products and home furnishing products a high likelihood of exposing people to hazardous chemicals.

- Products in these categories are used by virtually all members of society.
- These products contain a wide range of Candidate Chemicals with known hazard traits.
- Use of the products indoors, where air exchange is slow, causes longer exposures to higher levels of certain Candidate Chemicals.
- People who work regularly with building products face even higher risk of exposure.
- Products in these categories have clear pathways for exposing children to Candidate Chemicals by ingestion: they release chemicals into household dust, which toddlers ingest when they put their hands in their mouths after crawling on the floor. Therefore, these categories support two of our policy priorities: they include products with clear routes of exposure and products that may impact children.
- Flame-retardant and stain-resistant Candidate Chemicals used in home furnishings have been detected in household dust and in human biomonitoring studies.
- The incidence of childhood asthma has increased significantly in recent decades and Candidate Chemicals that cause or worsen asthma are found in building products.

4.2.1 Building Products: Painting Products, Adhesives, Sealants, and Flooring

This product category does not encompass all products used to construct buildings. Instead, it focuses on select subcategories – namely painting products, adhesives, sealants, and flooring.

Examples of building materials in this category include:

Paints and Primers	Paint and Graffiti Removers and Cleaners	Stains and Varnishes
Adhesives and Glues	Caulking	Sealants
Roof Coatings	Carpeting	Carpet Padding
Engineered Wood and Laminate Flooring	Plywood and OSB Subflooring	Vinyl Flooring

Table 2 lists several of the many Candidate Chemicals that can be found within the Building Products category. Note that any Candidate Chemical could be considered as we evaluate our product categories to identify potential Priority Products.

Table 2 Potential Candidate Chemicals in Building Products

Chemicals or Chemical Classes	Functional Use
Brominated or chlorinated organic compounds, organophosphates	Flame retardant
Isocyanates	Reactant, precursor
Metals, such as Chromium VI	Dyes and Pigment
Perfluorochemicals	Repellent (water-, oil-, stain-)
Phthalates	Plasticizer
Volatile Organic Compounds, such as formaldehyde, n-hexane, n-methyl-pyrrolidone, toluene	Solvent

4.2.2 Household, Office Furniture and Furnishings

This product category encompasses products within the GPC segment "Household/Office Furniture/Furnishings" that have been treated with flame retardant or stain resistant chemicals. This GPC segment is divided into three families: "Fabric/Textile Furnishings," "Household/Office Furniture," and "Ornamental Furnishings."

Examples of products in this category include:

Bedding	Fabric and Textile Furnishings
Seating and Sofas	Curtains

In our discussion of each of the other categories in this plan, we include a table of examples of chemicals or chemical classes we may consider as we evaluate products within the category. In the case of Household, Office, Furniture and Furnishings, DTSC is limiting the scope of the candidate chemicals we will evaluate. **We do not intend to consider products in this category that do not contain flame retardants or perfluorinated compounds** (Table 3).

Table 3 Potential Candidate Chemicals in Household, Office Furniture and Furnishings

Chemicals or Chemical Classes	Functional Use
Chlorinated and brominated organic compounds, organophosphates	Flame retardant
Perfluorochemicals	Repellent (water-, oil-, stain-)

4.3 CLEANING PRODUCTS



Cleaning products are ubiquitous, and people may be exposed to chemicals in these products both during and after use. These products are formulated using chemicals that improve the performance of these cleansers, but often these same chemicals can also harm people or our environment. People may get cleaning products directly on their skin or in their eyes, or they can inhale their vapors. Exposure to chemicals such as strong acids or bases in cleaning products can cause skin rashes, severe burns, or asthma attacks. Other Candidate Chemicals in some cleaning products are endocrine disruptors, reproductive toxicants, or neurotoxicants.

Those who use cleaning products at work have higher exposures. According to the National Institute of Occupational Health Sciences (NIOSH), 2.3 million people work in building

custodial services occupations in the U.S., and another 1.4 million work as maids in hotels, or in healthcare facilities. NIOSH has made it a priority to support ongoing research to help cleaning professionals recognize and prevent or reduce risks at work. The CDPH has published reports and factsheets on work-related asthma among workers exposed to cleaning products. 15

After use, the volatile chemicals in a cleaning product may affect indoor air quality. Wastewater treatment plants are not designed to treat some contaminants in cleaning products that are washed down the drain. This can result in inadvertent chemical or biological reactions that lead to harmful degradation products. In the case of triclosan, for example, dioxin-like compounds, chloroform and other carcinogenic or cytohazardous chemicals can result – some of which are highly persistent.¹⁶

Cleaning Products are used in homes, schools, hospitals, restaurants, hotels, offices, and other indoor and outdoor environments.

¹⁴ http://www.cdc.gov/niosh/topics/cleaners/ Accessed August 14, 2014.

^{15 &}lt;u>http://www.cdph.ca.gov/programs/ohsep/Pages/Asthma.aspx</u> Accessed August 14, 2014.

¹⁶ Klosterhaus, S., R. Allen, and J. Davis. 2011. Contaminants of Emerging Concern in the San Francisco Estuary: Triclosan and Triclocarban. A Report of the Regional Monitoring Program for Water Quality in the San Francisco Estuary. SFEI Contribution #627. Final Report. San Francisco Estuary Institute, Oakland, CA.

Examples of products included in this product category are:

Air Fresheners	Bathroom Cleaners	Carpet Cleaners
Detergents	Surface Cleaners	Floor Cleaners
Floor Waxes And Wax Removers	General-Purpose Cleaners	Deodorizers
Oven Cleaners	Scouring Cleaners	Spot Removers
Window Cleaners		

Both consumers and manufacturers have become increasingly aware of the problems that can be associated with chemicals in cleaning products. Consumers have embraced product lines with less hazardous chemicals. At the same time, more and more manufacturers seek to develop and market products that are safer. The fragrance industry has voluntarily moved to restrict the use of numerous hazardous chemicals used in fragrances. Still, there are thousands of chemical compounds used in fragrances, some of which have hazard traits that may warrant further investigation. In selecting Cleaning Products, the Department will be able to encourage further adoption of safer chemicals in this market sector.

Table 4 lists several of the many Candidate Chemicals that can be found within the Cleaning Products category. Note that any Candidate Chemical could be considered as we evaluate our product categories to identify potential Priority Products.

Table 4 Potential Candidate Chemicals in Cleaning Products

Chemicals or Chemical Classes	Functional Use
Alkyl phenol ethoxylates (APEs)	Surfactant
Hydrogen Fluoride	Anti-scaling agent
Phthalates	Emulsifier
Triclosan	Antimicrobial
Volatile Organic Compounds, such as n-hexane, methyl ethyl ketone, n-methyl-pyrrolidone, toluene, and xylene	Solvent

4.4 CLOTHING

This product category includes fiber and textile materials worn on the body with the primary function of covering the body or providing protection against the elements. Examples of products included in this product category are:

Full body wear	Lower body wear	Sleepwear
Sportswear	Underwear	Upper body wear

The number and variety of types of clothing in the market are enormous. U.S. retail clothing sales exceeded \$300 billion in 2009. Based on California Board of Equalization records, taxable sales of Clothing and Clothing Accessories in 2012 were approximately \$26 billion. Clothing is the fourth largest taxable commodity in California after motor vehicles and gasoline, general merchandise, and taxable food services. Modern clothing and textiles are engineered to have qualities that buyers demand, such as color fastness, wrinkle resistance, stain resistance, and water repellen-

cy. Manufacturers achieve these properties by adding a variety of chemicals during the manufacture of clothing, including surfactants, dyes, paraffins, metals, perfluorinated compounds, formaldehyde, and phthalates. Many of these chemicals are toxic, bioaccumulative, or environmentally persistent, and appear on DTSC's Candidate Chemicals list.

Textile and clothing manufacturing use large quantities of water, most of which is ultimately discharged as wastewater. Excess, unreacted chemicals in this wastewater are discharged into water bodies, where they can harm aquatic organisms. Over a product's lifetime, chemicals continue to be released



from finished clothing as it is laundered.¹⁷ ¹⁸ Wastewater treatment plants typically have not been designed to treat emerging contaminants. So in some cases, chemicals are not completely removed and pass into the environment. During or after treatment, some chemicals may degrade into harmful degradation products, some of which may persist and can have effects on aquatic life throughout the food web.

DTSC's identification of this product category builds on work already undertaken by the clothing and textile industry to reduce their use of hazardous chemicals. Industry leaders have acknowledged the need for manufacturers to be aware of chemical safety and are actively working to restrict the use of certain chemicals. To this end, they have developed "restricted substances lists" (RSLs). These lists level the playing field for proactive, responsible manufacturers by providing consistent information on chemical substances that are banned or restricted in clothing and textiles by various jurisdictions. Industry RSLs have already led to reductions in the use of the stain-repellent chemical perfluorooctanoic acid (PFOA), which is very persistent in the environment, as well as surfactants known as nonylphenol ethoxylates (NPEs), which are highly toxic to fish, as well as to aquatic invertebrates and plants. Despite the existence of these industry lists, PFOA, NPEs, and other Candidate Chemicals continue to be used in clothing. While DTSC will consider the various chemicals identified in RSLs, we may also investigate chemicals on our Candidate Chemicals list that are not currently found on industry RSLs.

DTSC will exclude consideration of protective wear intended exclusively for occupational safety.

Table 5 Potential Candidate Chemicals in Clothing Products

Chemicals or Chemical Classes	Functional Use
Alkyl-phenol ethoxylates (APEs)	Surfactant
Aromatic amines and azo dyes	Colorant, Dye, Pigment
Perfluorochemicals, formaldehyde	Water repellency Oil, stain, or wrinke resistance
Phthalates	Plasticizer
Triclosan	Antimicrobial agent, Material Preservative

¹⁷ Swedish Chemicals Agency, 2012. Antibacterial substances leaking out with the washing water—analyses of silver, triclosan and triclocarban in textiles before and after washing

¹⁸ Environment Agency, 2013. Nonylphenol ethoxylates (NPE) in imported textiles

4.5 FISHING AND ANGLING EQUIPMENT

Recreational anglers fish in sensitive habitats such as lakes, rivers, streams, bays, and the ocean. More than one million Californians fish recreationally. Together, these anglers may lose a significant amount of fishing and angling equipment into the environment. Any hazardous chemicals in the equipment they lose can expose, and potentially harm, birds and other wildlife. Products in this category contain a variety of chemicals that appear on the Candidate Chemicals List, including metals such as lead, zinc, and copper. Of particular concern are products such as fishing weights and sinkers made from lead that are used to add weight to a fishing line, lure, or hook. Lead poisoning associated with the ingestion of lead fishing weights has been well documented in a variety of bird and animal species around the world, including swans, waterfowl, gulls, turtles, cranes,



herons, and pelicans. We are most concerned about fishing weights and gear that might be consumed by water fowl due to characteristics of size, shape and density. We will not focus on weights or gear not likely to be ingested by waterfowl, (e.g., large weights such as those typically used for off-shore salmon fishing).

Examples of products included in this product category are:

Fishing weights and gear

Table 6 Potential Candidate Chemicals in Fishing and Angling Equipment

Chemicals or Chemical Classes	Functional Use
Metals	Strength, Density

¹⁹ California Sport Fishing Licenses 2014 https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=59818&inline

Lead Fishing Sinkers; Response to Citizens' Petition and Proposed Ban; Proposed Rule, U.S. Environmental Protection Agency, Federal Register, Volume 59, Number 46, Wednesday, Mary 9, 1994. http://www.gpo.gov/fdsys/pkg/FR-1994-03-09/html/94-5298.htm

4.6 OFFICE MACHINERY (CONSUMABLE PRODUCTS)



This product category includes consumable and refillable components of office machinery (e.g., cash registers, credit card terminals, printers, and photocopiers) that must periodically be refilled or replaced because they have been depleted or worn out. Examples of products in this category include:

Ink Cartridges
Thermal Paper
Toner Cartridges

Products in this category are widely used in offices, retail stores, and homes. They contain a range of Candidate Chemicals, including azo-dyes (some of which are carcinogenic to

humans and acutely toxic to aquatic life), bisphenols (possible developmental toxicants), and phthalates. These chemicals can also be transferred to printed documents produced by office machinery. People can be exposed to Candidate Chemicals when they replace consumable products or when they handle printed documents. People who eat or smoke after handling office machinery consumable products or documents may also ingest Candidate Chemicals. Workers who use office machinery daily, throughout the course of the day, have the highest potential for chemical exposure from consumable office products.

Candidate Chemicals contained in these products may be released to the environment through their use and disposal.

Table 7 Potential Candidate Chemicals in Office Machinery (Consumable Products)

Chemicals or Chemical Classes	Functional Use
Azo dyes	Colorants
Bisphenols	Developer
Phthalates	Stabilizer, plasticizer
Volatile Organic Compounds such as hexane, toluene and xylene	Solvents

4.7 SUMMARY OF PRODUCT CATEGORIES

Table 8 Product Categories and Examples

Beauty/Personal Care/Hygiene	Cleaning Products
Skin Products	Fresheners and Deodorizers
Personal Hygiene Products	Cleaners
Hair Products	Laundry
Cosmetics and Fragrances	Surface Care
Building Products:	Clothing
Painting Products, Adhesives, Sealants and Flooring	Full Body Wear
Adhesives and Glues	Lower Body Wear and Bottoms
Carpeting and Carpet Padding	Sleepwear
Engineered Wood and Laminate Flooring	Sportswear
Paints and Primers	Underwear
Paint and Graffiti Removers	Upper Body Wear and Tops
Roof Coatings Sealants	Fishing and Angling Equipment
Vinyl Flooring	Fishing weights
Household/Office Furniture/Furnishings	Office Machinery Consumable Products
with PFCs, FRs	Inks and Toners
Bedding	Thermal Paper
Curtains	
Fabric and Textile Furnishings	
Household and Office Seating	

5.0 IMPLEMENTING THE WORK PLAN

Possible Changes During this Cycle

During the three years covered by this Work Plan, there is potential for changes that may impact its implementation:

Products and Product Categories: DTSC might consider a product that falls outside the scope of this plan:

- if it is legally required mandate (e.g., by new legislation); or
- through the petition process of the SCP regulations.*

Candidate Chemicals: A chemical that is not currently a Candidate Chemical may become one, and could then be designated as a Chemical of Concern in a Priority Product if:

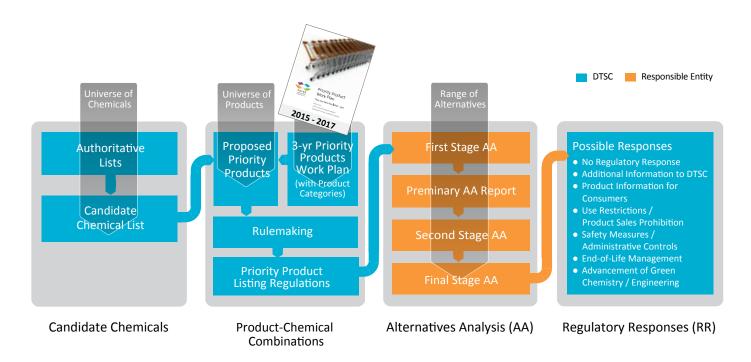
- the chemical is added to one of the authoritative lists that make up the Candidate Chemicals List; or
- DTSC adopts regulations adding the chemical to the Candidate Chemicals List, either on its own initiative or in response to a petition.

We anticipate announcing as many as three new product-chemical combinations in 2015. As we implement this Work Plan, we expect the process will improve in efficiency and effectiveness and in both 2016 and 2017, we likely will increase the number of products we announce. As our product-selection process gains momentum, DTSC will remain committed to maintaining an open, deliberative process and to making decisions that are grounded in science.

Each Priority Product selection will follow the regulatory framework established through the collaborative efforts of manufacturers, retailers, consumers, scientists, and environmentalists. Continued engagement with all our stakeholders is critical for us to successfully implement these regulations.



* California Code of Regulations, division 4.5, title 22, chapter 55, § 69504



The framework calls for several steps after a potential Priority Product is nominated:

Priority Product Listing Regulations: Before DTSC finalizes regulations to list Priority Products from among the categories in this Work Plan, we will provide opportunities for public input. These will include at least one public workshop before a formal notice of proposed rulemaking is issued, in addition to formal public comment periods provided under the Administrative Procedure Act.

Alternative Analysis: Manufacturers will follow the Alternatives Analysis process to identify safer product designs or alternative formulations that avoid regrettable substitutes.

Regulatory Response: Upon completion of the Final Alternatives Analysis Report, DTSC will issue an appropriate regulatory response if warranted. There are seven possible regulatory responses named in regulation.

Publication of this Work Plan is only the beginning of the process for selecting products over the next three years. Initial information will be gathered about potential Priority Products via extensive research, data call-ins, and public workshops. Priority Products will be identified from the seven categories only after robust scientific review and information exchange with industry experts, government agencies, academic researchers, and NGOs.

Multiple iterations of research and stakeholder engagement may be necessary to properly identify and define products in advance of rulemaking. We will continue to welcome input from a wide variety of sources. Engagement with all of our stakeholders has been and will continue to be critical for us to successfully implement this Work Plan and the SCP regulations. Engagement is integral to building confidence among manufacturers, legislators, the NGO community, and ultimately consumers in these groundbreaking regulations, the decisions we make, and the changes that result from our work.

6.0 APPENDIX - ACRONYMS AND TERMINOLOGY

CalEPA	California Environmental Protection Agency	NPE	Nonylphenol ethoxylate
CDPH	California Department of Public Health	ОЕННА	Office of Environmental
DTSC	Department of Toxic Substances Control		Health Hazard Assessment
GPC	Global Product Classification	PBDE	Polybrominated diphenyl ether
GRSP	Green Ribbon Science Panel	PFOA	Perfluorooctanoic acid
NGO	Non-governmental organization	RSL	Restricted Substances Lists
NIOSH	National Institute of Occupational	SCP	Safer Consumer Products
	Health Sciences	U.S. EPA	U.S. Environmental Protection Agency

A NOTE ON TERMINOLOGY

Safer Consumer Products Regulations – References to the Safer Consumer Products Regulations in this document are to Division 4.5, Title 22, California Code of Regulations Chapter 55, § 69501, et seq.

Priority Product – The Safer Consumer Products Regulations define a Priority Product as "a product-chemical combination identified and listed as a Priority Product by the Department [of Toxic Substances Control] under section 69503.5 [of title 22 of the California Code of Regulations]." While a product-chemical combination does not formally become a Priority Product until DTSC regulations designating it as such take effect, this document sometimes refers to a "proposed" or "potential" Priority Product. The word "proposed" should be interpreted broadly here. A proposal could be an informal announcement made by releasing a draft document, a statement at a public workshop, or publication of a Notice of Proposed Rulemaking.

Candidate Chemical/Chemical of Concern – The Safer Consumer Products Regulations established the Candidate Chemicals list.²¹ A chemical on this list is properly referred to as a Candidate Chemical unless and until DTSC has formally designated it a Chemical of Concern in a Priority Product by adopting regulations.

²¹ California Code of Regulations, division 4.5, title 22, chapter 55, § 69502.2



