DEPARTMENT OF ECOLOGY
State of Washington

Draft Regulatory Determinations Report to the Legislature:
Safer Products for Washington Cycle 2, Phase 3

Introduction

Chapter 70A.350 RCW[1] directs Ecology, in consultation with the Department of Health (Health), to implement a regulatory program to reduce toxic chemicals in consumer products. This implementation program is called Safer Products for Washington and has four distinct phases:

1. Identification of priority chemicals and chemical classes of concern.
2. Identification of priority consumer products that are significant sources or uses of one or more priority chemicals.
3. Determination of needed regulatory actions.
4. Adoption of regulations to implement any needed restrictions or reporting requirements.

These phases are implemented over a repeating five-year cycle. For each of the first three phases in the cycle, Ecology submits a report to the Legislature summarizing the agency's decisions.

This report fulfills the requirement for the regulatory determinations phase (Phase 3) of the second review cycle of Safer Products for Washington, which began in 2023.

Regulatory determinations

In this report we present draft regulatory determinations for the 15 priority consumer products reviewed in Cycle 2 as directed by Chapter 70A.350 RCW.

RCW 70A.350.040(1) specifies that Ecology may make one of the following regulatory determinations for each chemical-product combination in this report:

- Determine that no regulatory action is currently required.
- Require a manufacturer to provide notice of the use of a priority chemical or class of priority chemicals consistent with RCW 70A.430.060.
- Restrict or prohibit the manufacture, wholesale, distribution, sale, retail sale, use, or any combination thereof, of a priority chemical or class of priority chemicals in a consumer product.

[1] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.350

To restrict priority chemicals in priority products, Ecology must confirm the following (RCW 70A.350.040(3)):

- Safer alternatives are feasible and available.
- The restriction will either reduce a significant source or use of a priority chemical **or** is necessary to protect the health of sensitive populations or sensitive species.

A **sensitive population** means a category of people identified by the department that may be or is disproportionately or more severely affected by priority chemicals.

A **sensitive species** means a species or grouping of animals identified by the department that may be or is disproportionately or more severely affected by priority chemicals.

The regulatory determinations described in this report are general. They align with the three options outlined in RCW 70A.350.040(1). The priority products evaluated were determined to be significant sources or uses of priority chemicals as summarized in our report, Identification of Priority Products: Safer Products for Washington Cycle 2 Implementation Phase 2.[2] We have only recommended restrictions on priority chemicals in products if we determined that safer alternatives are feasible and available.

Safer alternatives

RCW 70A.350.010 defines safer as "less hazardous to humans or the environment than the existing chemical or process." Safer alternatives to priority chemicals can be either alternative chemicals, or alternative materials or processes that eliminate the need for priority chemicals.

To determine whether an alternative chemical is safer, we used our Criteria for Safer to compare the hazards of priority chemicals and potential alternatives. We developed these criteria during the first cycle of the program. For details on our Criteria for Safer, please refer to Appendix C[3] of our previous report, Regulatory Determinations Report to the Legislature: Safer Products for Washington Cycle 1 Implementation Phase 3.[4]

Feasible and available alternatives

The statute does not define feasible or available.

We based our process for identifying feasible and available alternatives on the Interstate Chemicals Clearinghouse (IC2) Guide.[5] It provides a framework that aligns with other authoritative bodies, while meeting the flexibility required by Washington's law. Based on the IC2 Guide, we set criteria to identify feasible and available alternatives. These criteria focus on identifying alternatives that manufacturers already use in the relevant application.

[2] https://apps.ecology.wa.gov/publications/SummaryPages/2504030.html
[3] https://apps.ecology.wa.gov/publications/parts/2204018part1.pdf
[4] https://apps.ecology.wa.gov/publications/SummaryPages/2204018.html
[5] https://www.theic2.org/wp-content/uploads/2022/09/IC2_AA_Guide_Version_1.1.pdf

For details on our Criteria for Feasible and Available, please refer to Appendix D[6] of our prior report, Regulatory Determinations Report to the Legislature: Safer Products for Washington Cycle 1 Implementation Phase 3.

Making regulatory determinations

Ecology and Health made the regulatory determinations below based on the applicable criteria and a review of existing regulations, peer-reviewed science, government reports, available economic and market information, and other scientific information. We also consider input received from interested and potentially impacted parties throughout this process. Many of the products under consideration are already regulated by other states or nations. We provide details in the Draft Technical Supporting Documentation for Regulatory Determinations: Safer Products for Washington Cycle 2 Implementation Phase 3[7] report. The technical document provides an overview of:

- The scope of each priority product.
- The scope of each priority chemical class.
- Information that supports Ecology's findings about whether alternatives are safer.
- Information that supports Ecology's findings about whether alternatives are feasible and available.
- Ecology's regulatory determination: restriction, reporting requirements, or no action.

To help us understand the potential impacts of regulatory determinations, our evaluation of feasibility included a market analysis. We used available information to consider where the market for each priority product category is shifting away from using priority chemicals. This market analysis is separate from the mandatory economic analyses that we will complete during the rulemaking process, which will occur in 2027 through 2028. However, information from the market analysis can inform the rulemaking process.

In some instances, we may receive and review additional information from interested parties, manufacturer orders, and through additional hazard assessments that have not yet been completed. As we make revisions and updates to the draft report in response to public comments, we plan to incorporate information as it becomes available and as it is relevant to the regulatory determinations presented in this report.

Ecology's draft regulatory determinations are listed in Table 1 below. **Note**: There are two priority product categories where Ecology made different regulatory determinations based on specific characteristics of the product's use.

[6] https://apps.ecology.wa.gov/publications/parts/2204018part2.pdf
[7] https://apps.ecology.wa.gov/publications/SummaryPages/2604043.html

Table 1: Draft regulatory determinations for priority chemical-product combinations reviewed in Cycle 2.

Priority consumer product	Priority chemical/chemical class	Draft regulatory determination
Architectural paints	Alkylphenol ethoxylates (APEs)	Restriction
Architectural paints	Per- and Polyfluoroalkyl Substances (PFAS)	• Restriction: for most uses • Reporting requirement: for special purpose architectural paints
Artificial turf	PFAS	Restriction
Artificial turf	N-(1,3-dimethylbutyl)-N'-phenyl-p-phenylenediamine (6PPD)	Restriction
Cookware and kitchen supplies	PFAS	Restriction
Cosmetics	Cyclic volatile methylsiloxanes (cVMS)	Restriction
Firefighting PPE	PFAS	Restriction
Floor waxes and polishes	PFAS	Restriction
Hard surface sealers	PFAS	Restriction
Insulation	Organohalogen flame retardants (OFRs)	• Restriction: for rigid polyisocyanurate foam roofing assemblies • Reporting requirement: for other insulation types
Jewelry and accessories	• Cadmium and cadmium compounds • Lead and lead compounds	Restriction
Motor vehicle tires	6PPD	Reporting requirement
Nail products	Benzene, ethyl benzene, toluene, and xylene (BTEX) substances	Restriction
Plastic packaging	Polyvinyl chloride (PVC) and polyvinylidene chloride (PVDC) (organochlorine substances)	Reporting requirement

Priority consumer product	Priority chemical/chemical class	Draft regulatory determination
Printing inks	Polychlorinated biphenyls (PCBs)	No action at this time
Sealants, caulks, and adhesives	Ortho-phthalates	Restriction
Solid deodorizers	1,4- dichlorobenzene (1,4-DCB) (organochlorine substance)	Restriction

Scientific basis for regulatory determinations

A summary describing each priority chemical-product combination and the reason behind each regulatory determination is provided below.

More detailed information—including definitions for chemical-product combinations, specific safer alternatives identified, and citations to applicable peer-reviewed studies and other relevant sources—is included in the Draft Technical Supporting Documentation for Regulatory Determinations: Safer Products for Washington Cycle 2 Implementation Phase 3 report.[8]

In addition, our Draft Market Analysis[9] contains information on potential market implications that may result from these draft regulatory determinations.

Architectural paints (PFAS and APEs)

Architectural paints (referred to as "paints") include coatings designed for interior and exterior building surface applications. This category includes paints intended for both non-professional and professional use and includes primers and clearcoats, such as varnishes or lacquers.

In our Cycle 2, Phase 2 technical report,[10] we described architectural paints as a significant use of both per- and polyfluorinated alkyl substances (PFAS) and alkylphenol ethoxylates (APEs). Architectural paint formulations and past studies highlight detection of organic fluorine (an indicator of PFAS) or target PFAS in around half of paint products tested, although data is limited. APEs are used in architectural paints as surfactants and emulsifiers, as reported in manufacturer safety data sheets.

People, specifically workers and children, can be exposed to PFAS and APEs from paint when applying it to surfaces or over time as paint degrades. Paint may also release PFAS and APEs into the environment during use and over time. We identified alternatives to both

[8] https://apps.ecology.wa.gov/publications/SummaryPages/2604043.html
[9] https://apps.ecology.wa.gov/publications/SummaryPages/2604045.html
[10] https://apps.ecology.wa.gov/publications/SummaryPages/2504031.html

PFAS and APEs in architectural paints that meet either our minimum or additional criteria for safer. These alternatives are already used in architectural paint products and, therefore, are considered feasible and available for these applications.

Our draft regulatory determination is a restriction on both PFAS and APEs in most architectural paints—excluding fluoropolymers in special purpose architectural paints for some specific applications noted below.

Our draft regulatory determination is a reporting requirement for fluoropolymers, a type of PFAS, in specific applications of special purpose architectural paints used:

- On the internal or exterior surface of chemical storage tanks.
- For metal parts used in oil and gas industry construction.
- For metal parts in sports stadiums and monuments.
- For metal parts of water tanks and towers, aquariums, dams, airports and ports, train and bus stations, bridges, schools, and hospitals.

This restriction will reduce a significant use of PFAS and APEs. This will also reduce a potential source of exposure to PFAS and APEs to people and the environment. The reporting requirement for fluoropolymers in special purpose architectural paints will help us learn more to inform potential future regulatory action.

We invite feedback or information relevant to use of fluoropolymers in these or other special purpose architectural paints and their applications.

Artificial turf (PFAS and 6PPD)

Artificial turf includes all artificial or synthetic turf intended for use on indoor or outdoor surfaces. This category includes all components of the artificial turf, including artificial grass blades, infill, and backing materials. We estimate that several million square feet of artificial turf are currently in use in Washington.

In our Cycle 2, Phase 2 technical report,[11] we described artificial turf as a significant source and use of PFAS and 6PPD. PFAS are used as polymer processing aids in the manufacture of artificial grass blades. 6PPD is present in crumb rubber often used as infill in artificial turf products. Artificial turf can release PFAS, 6PPD, and the transformation product 6PPD-quinone (hereafter, 6PPDQ) to the environment, either through runoff or in microplastics released from fields. This pollution has the potential to expose sensitive species to 6PPD and 6PPDQ. 6PPDQ is highly toxic to several fish species, most notably coho salmon.

We identified safer alternatives to the use of PFAS and 6PPD in artificial turf that are feasible and available. This includes alternative processing aids as well as alternative types of natural infill materials that meet our minimum or additional criteria for safer.

[11] https://apps.ecology.wa.gov/publications/SummaryPages/2504031.html

Our draft regulatory determination is a restriction on both PFAS and 6PPD in artificial turf. This restriction will reduce a significant source and use of PFAS and 6PPD. It is necessary to protect sensitive species in Washington from potential exposure to 6PPDQ, including coho salmon.

Cookware and kitchen supplies (PFAS)

Cookware and kitchen supplies include durable houseware items used in homes and restaurants to prepare, dispense, or store food, foodstuff, or beverages. Cookware and kitchen supplies include stovetop cookware, bakeware, small domestic appliances and gadgets, and cooking utensils. Coatings applied to cookware that are not intended for direct contact with foods and used for decorative purposes are not considered part of the food contact surface of the cookware.

In our Cycle 1.5, Phase 3 technical report,[12] we described cookware and kitchen supplies as a significant source and use of PFAS and adopted a reporting requirement on this product category. PFAS is commonly used in cookware in nonstick coatings, which can cause exposure through the manufacture, use, and disposal of cookware. Nonstick coatings can degrade if heated to high temperatures and be a source of exposure to PFAS. These coatings also scratch and chip over time and expose people to polymeric PFAS particles.

We identified safer alternatives to use of PFAS in cookware and kitchen supplies that are feasible and available. Safer alternatives include chemicals that can replace the nonstick function in stovetop cookware, bakeware, and small domestic appliances, some of which are commonly advertised as ceramic nonstick. Safer material alternatives are also feasible and available, and include cast iron, stainless steel, and carbon steel. As a safer alternative process to mimic nonstick, cooking oils can be used. Kitchen utensils don't require a nonstick function.

Our draft regulatory determination is a restriction on PFAS in cookware and kitchen supplies. This restriction will reduce a significant use of PFAS, and a source of PFAS exposure to people and the environment.

Cosmetics (cVMS)

Cosmetics is a broad category of products intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance.[13] This doesn't include active ingredients regulated by the U.S. Food and Drug Administration.

In our Cycle 2, Phase 2 technical report,[14] we described cosmetics as a significant source and use of cyclic volatile methylsiloxanes (cVMS). These chemicals are used as ingredients in

[12] https://apps.ecology.wa.gov/publications/SummaryPages/2404024.html
[13] See also RCW 70A.560.010(1) and RCW 69.04.011.
[14] https://apps.ecology.wa.gov/publications/SummaryPages/2504031.html

cosmetic products for several functions, including use as emollients, conditioning agents, and carriers. People can be exposed from using cosmetics; workers who routinely use these products in their jobs may have higher exposures. Cosmetics are estimated to be the largest use and source of releases of cVMS to the environment from consumer products, estimated to account for 91 percent of environmental releases in an analysis by the European Chemicals Agency.[15]

We identified safer alternatives that can replace all the functions associated with use of cVMS in cosmetics. These alternatives are already used in cosmetic products on the market and, thus, are feasible and available for the application of interest.

Our draft regulatory determination is a restriction on cVMS in cosmetics. This restriction will reduce a significant use of cVMS and a source of exposure to people and the environment.

Firefighting PPE (PFAS)

Firefighting personal protective equipment (PPE) includes clothing designed to be worn by firefighting personnel in performance of their duties including jackets, pants, shoes, gloves, helmets, and respiratory equipment.[16] For this report, we focused our analysis of alternatives on a subset of apparel PPE that includes structural turnout, station wear, technical rescue, wildland, and emergency medical (EMS) gear.

In our Cycle 1.5, Phase 3 technical report,[17] we described firefighting PPE as a significant use of PFAS and adopted a reporting requirement on this product category. PFAS are used in durable water repellents applied to the outer shells of gear to increase water repellency, and in moisture barriers primarily to add water, liquid, and viral penetration resistance.

We identified alternative chemicals that can be used for the durable water-repellent function and that meet our minimum criteria for safer. We also identified alternative materials that can be used in moisture barriers to replace the functions of PFAS and that meet our minimum criteria for safer. These alternatives are already used in firefighting PPE products on the market and are feasible and available. These alternatives are applicable to categories of gear including structural turnout, station wear, technical rescue, wildland, and EMS gear.

Our draft regulatory determination for firefighting PPE is a restriction on PFAS in structural turnout, station wear, technical rescue, wildland, and EMS gear. This restriction will reduce a significant use of PFAS and source of potential exposure to people, including firefighters in Washington.

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[15] https://echa.europa.eu/documents/10162/13641/rest_d4d5d6_axvreport_en.pdf/c4463b07-79a3-7abe-b7a7-5c816e45bb98

[16] See also RCW 70A.400.005(4)

[17] https://apps.ecology.wa.gov/publications/SummaryPages/2404024.html

Other types of firefighting PPE that don't fit into these categories would still be subject to the previously adopted reporting requirement.

Floor waxes and polishes (PFAS)

Floor waxes and polishes include formulated products designed to polish, protect, or enhance a floor's surface. Examples include multi-surface floor finishes, and low-, semi- and high-gloss polishes used on resilient floor surfaces such as cork, linoleum, rubber, and vinyl.

In our Cycle 1.5, Phase 3 technical report,[18] we described floor waxes and polishes as a significant use of PFAS and adopted a reporting requirement on this product category. Floor waxes and polishes have the potential to expose people and the environment to PFAS through use and disposal. PFAS were described as used in floor waxes and polishes to provide water and oil repellency, and to increase the spreading abilities of other components in a formulation. Since then, additional information from California's Department of Toxic Substances Control, and from manufacturers, has refined our understanding of the use of PFAS in these products. Based on this information, we focused our evaluation of PFAS on the surfactant and wetting agent functions in these products.

We identified alternative surfactants and wetting agents that meet our minimum criteria for safer and can replace these functions of PFAS in floor wax and polish products. These alternatives are used in floor wax and polish products already on the market, and as such are considered feasible and available for the application of interest. Products that use these safer alternatives are advertised for various flooring surfaces including cork, linoleum, rubber, and vinyl.

Our draft regulatory determination is a restriction on PFAS in floor waxes and polishes. This restriction will reduce a significant use of PFAS and source of potential exposure to people and the environment.

Hard surface sealers (PFAS)

Hard surface sealers are products used to seal hard porous surfaces (for example, non-resilient flooring) such as concrete, stone, unglazed tile, and wood.

In our Cycle 1.5, Phase 3 technical report,[19] we described hard surface sealers as a significant use of PFAS and adopted a reporting requirement on this product category. This was based on information previously summarized our PFAS Chemical Action Plan[20] and peer-reviewed literature. PFAS are used in these products for the chemical functions of water repellency, oil repellency, stain resistance, and dirt repellence or anti-soiling. These chemicals can enter the environment from use and disposal of hard surface sealers, and this has the potential to expose animals and plants on land and in water.

[18] https://apps.ecology.wa.gov/publications/SummaryPages/2404024.html
[19] https://apps.ecology.wa.gov/publications/SummaryPages/2404024.html
[20] https://apps.ecology.wa.gov/publications/SummaryPages/2104048.html

We identified safer alternative chemicals that can replace the functions of PFAS in hard surface sealers. The alternatives are already used in hard surface sealer products on the market, and those products are advertised for a wide range of hard surface types—this indicates that safer alternatives are feasible and available for use in these products.

Our draft regulatory determination is a restriction on PFAS in hard surface sealers. This restriction will reduce a significant use of PFAS and source of potential exposure to people and the environment.

Insulation (OFRs)

Insulation products include materials used in buildings to provide thermal insulation between indoor and outdoor spaces or between two indoor spaces. Insulation may be installed in various places within buildings, including in floor and roof ceiling assemblies, wall assemblies, crawl spaces, or attics.

In our Cycle 2, Phase 2 technical report,[21] we described insulation as a significant use of organohalogen flame retardants (OFRs). OFRs are used in foam plastic insulation such as polystyrene, polyurethane, and polyisocyanurate (polyiso) materials to meet applicable fire safety standards. Concentrations of OFRs used in insulation materials vary depending on the material type and application and can range from 0.1 percent to 45 percent of the material by weight as reported by manufacturers. A survey conducted by Home Innovation Research Labs estimated around 22 percent of insulation used in single-family housing is plastic foam board or spray foam insulation, and many of these products likely contain OFRs, representing a significant use of OFRs. Further, available information suggests some OFRs can migrate from insulation materials during use or after disposal and are a potential source of exposure to people and the environment. We previously had shared with interested parties that we needed to slow work on this product category during Cycle 2. However, we were still able to identify alternatives for some insulation applications.

We identified safer alternatives that are feasible and available for use in rigid polyisocyanurate and foam insulation products for roofing assemblies, but not for other uses such as wall assemblies. While these alternatives are likely feasible for use in wall assemblies as well, we don't have adequate information to demonstrate their current market availability in the United States. Other material alternatives such as mineral wool also meet our minimum criteria for safer but require additional analysis to determine their feasibility across various insulation applications.

Our regulatory determination is a restriction on use of OFRs in rigid polyiso foam insulation roofing assemblies. This restriction will reduce a significant use of OFRs and source of potential exposure to people and the environment.

For other types of insulation products, our regulatory determination is a reporting requirement. This will provide a path to gather additional information on the use of OFRs in

[21] https://apps.ecology.wa.gov/publications/SummaryPages/2504031.html

other insulation applications. We plan to extend our analysis of insulation into Cycle 3 of Safer Products for Washington to further evaluate whether safer alternatives are feasible and available for other insulation applications.

Jewelry and accessories (cadmium and lead)

Jewelry and accessories include articles and accessories intended to be worn by a person and kits that are sold to consumers to make jewelry and accessories. Examples of jewelry include, but aren't limited to, rings, necklaces, watches, hair accessories, body piercings, and decorative clothing attachments.

In our Cycle 2, Phase 2 technical report,[22] we described jewelry and accessories as a significant use of cadmium and cadmium compounds as well as lead and lead compounds. Lead and cadmium aren't easily identifiable in these products, but recent testing studies in the United States, European Union, and other countries has shown continued presence of these toxic heavy metals in products on the market. The concentrations detected in products are highly variable, with detections up to 98 percent of the product by weight.

People have the potential to be exposed to cadmium and lead from jewelry and accessories during product use, primarily through incidental ingestion of these metals after handling contaminated products. This is of particular concern for sensitive populations such as children because higher exposures to lead and cadmium are associated with lifelong human health impacts. Cadmium and lead are already restricted in children's jewelry products in Washington under the Children's Safe Products Act (CSPA),[23] but children can also be exposed from jewelry marketed to adults.

We identified safer alternatives that can replace cadmium and lead in jewelry and accessories; they are also feasible and available for use in these products. This is further supported by the existing restrictions on the use of these chemicals in children's jewelry under CSPA and the continued availability of those products in the Washington market.

Our draft regulatory determination is a restriction on cadmium, cadmium compounds, lead, and lead compounds in jewelry and accessories. This restriction will reduce a significant use of these toxic heavy metals and source of potential exposure to people and the environment, including sensitive populations such as children.

Motor vehicle tires (6PPD)

During the 2024 legislative session, the Legislature amended RCW 70A.350.110 and identified motor vehicle tires containing 6PPD as a priority product. As described in our Cycle 2, Phase 2 technical report,[24] the scope of this priority product category includes new

[22] https://apps.ecology.wa.gov/publications/SummaryPages/2504031.html
[23] https://ecology.wa.gov/CSPA
[24] https://apps.ecology.wa.gov/publications/SummaryPages/2504031.html

or replacement tires for a motorized vehicle intended for on-highway or off-highway use, including cars, all-terrain vehicles, and e-bikes.

Motor vehicle tires are a significant use of 6PPD. To our knowledge, all motor vehicle tires in the United States currently contain this chemical as a crucial ingredient to extend tire lifespan and safety. 6PPD is used as an antiozonant in tires and reacts with ozone to form 6PPDQ as part of its intended use. As tires roll on roadways, they produce tire wear particles that release both these chemicals. As a result, motor vehicle tires are a significant source of 6PPD and 6PPDQ entering the environment. 6PPDQ is acutely toxic to coho salmon at extremely low concentrations and is associated with pre-spawn mortality and urban runoff syndrome. An eventual restriction on 6PPD in motor vehicle tires would reduce a significant source and use of this chemical and is necessary to protect coho salmon and other sensitive aquatic species in Washington.

There is insufficient information available on alternatives to 6PPD for use in tires. Further, no chemical yet meets our feasible or available criteria for this purpose. Therefore, we cannot recommend a restriction on 6PPD in motor vehicle tires at this time.

Our draft regulatory determination is a reporting requirement for use of 6PPD in motor vehicle tires. We intend to clarify the specifics of this reporting requirement during rulemaking, with the aim of adopting a reporting requirement that will allow us to gather more precise information on the concentrations of 6PPD used across different types of motor vehicle tires (for example, car, truck, summer and winter variants, etc.) from a range of manufacturers.

Nail products (BTEX substances)

This category includes nail products broadly. Examples include nail art products, coatings, glues, hardeners, polish removers, and polish thinners.

In our Cycle 2, Phase 2 technical report,[25] we described nail products as a significant source and use of benzene, ethyl benzene, toluene, and/or xylene (BTEX) substances. These substances in nail products function as solvents and are used to dissolve or maintain other ingredients in liquid formulations.

Recent testing in 2024 by California Department of Toxic Substances Control suggests the use of BTEX substances in nail products has decreased in recent years, but around 5 percent of products tested still contained toluene above 100 ppm. In 2020, we estimated that around 2.3 million women in Washington used nail polish or other nail products, along with an unknown number of children, men, and nonbinary people. We also estimated between 130,000–170,000 kilograms of nail polish and enamel are used per year in Washington. This represents a significant use of BTEX substances. Further, we described the potential for

[25] https://apps.ecology.wa.gov/publications/SummaryPages/2504031.html

disproportionately higher exposures to BTEX substances from nail products in nail salon workers. Nail salons are often family businesses that have children present as well.

We identified many nail products that utilize alternative solvents that meet our minimum or additional criteria for safer. These alternatives are widely used in products already on the market across the nail products category and this demonstrates they are feasible and available for the application of interest.

Our draft regulatory determination is a restriction on BTEX substances in nail products. This restriction will reduce a significant use of these chemicals and is necessary to protect sensitive populations, including nail salon workers, people of childbearing age, and children in Washington.

Plastic packaging (PVC and PVDC)

Plastic packaging includes both packages and packaging components. Examples include, but aren't limited to, wrapping films, bags, and components such as coatings, closures, and labels. This doesn't include items intended for long-term storage of products (over one year by the end-consumer). Plastic in this context refers to synthetic or semi-synthetic polymers.

In our Cycle 2, Phase 2 technical report,[26] we described plastic packaging as a significant use of polyvinyl chloride (PVC) and polyvinylidene chloride (PVDC), two types of organochlorine substances. PVC is primarily used in rigid and flexible packaging for physical protection and display of packaged products. PVDC is primarily used as a thin layer in packaging to act as a barrier to oxygen and moisture. We estimated that between 9,000–13,000 US tons of PVC and PVDC packaging is used per year in Washington based on scaling national and international data to the population in Washington.

People and wildlife have the potential to be exposed to organochlorine substances during production, use, and after disposal of PVC and PVDC packaging. These products are manufactured using hazardous organochlorine substances and people can be exposed to residual chemicals in packaging. People and the environment can also be exposed to particles that form as PVC and PVDC degrades, commonly referred to as microplastics and nanoplastics. In addition, PVC and PVDC can form other highly toxic organochlorine substances during thermal decomposition, such as in landfill fires or during backyard burning.

Although we have made significant progress in our review of this category and anticipate we will eventually be able to identify safer, feasible, available alternatives for some applications, our work is not yet complete. With that in mind, we plan to extend our analysis of plastic packaging in Cycle 3 of Safer Products for Washington.

[26] https://apps.ecology.wa.gov/publications/SummaryPages/2504031.html

Our draft regulatory determination is a reporting requirement for PVC and PVDC in plastic packaging. This will allow us to collect more information on PVC and PVDC packaging used in Washington to strengthen our analysis.

Printing inks (PCBs)

This category includes printing inks sold in any form or packaging for personal, commercial, or industrial use. The category does not include dyes, toner powder, liquid toner, or printed products.

In our Cycle 1, Phase 3 report,[27] we described printing inks as a significant source of polychlorinated biphenyls (PCBs). Although they don't perform a function, PCBs are widespread in inks due to their presence in pigments. Pigments can contain PCBs due to non-specific chlorination processes used during manufacturing.

To date, we have been unable to make significant progress on identifying safer alternatives for this category.

Our draft regulatory determination for PCBs in printing inks is no action at this time.

Sealants, caulks, and adhesives (ortho-phthalates)

Sealant, caulk, and adhesive products are used to seal or fill joints and seams or bond materials together. This category is focused on products used in architectural or home maintenance applications. It doesn't include hard surface sealers used to seal porous surfaces, or adhesives that aren't intended for use in architectural or home maintenance applications, such as those used for product labeling.

In our Cycle 2, Phase 2 technical report,[28] we described sealants, caulks, and adhesives as a significant use of ortho-phthalates. Ortho-phthalates are used in these products to function as plasticizers, which alter properties such as durability, flexibility, and temperature tolerance. Ortho-phthalates concentrations reported in these products range from 0.1 percent to 40 percent, as reported in manufacturer safety data sheets. We estimated the volume of adhesives and sealants used in Washington ranged between 45–133 million pounds in 2022 for two relevant sectors: building and construction, and consumer DIY and retail. Even at the low end of the above estimates, this demonstrates a significant use of ortho-phthalates. People and the environment have the potential to be exposed to ortho-phthalates resulting from use and disposal of these products, and over time as these products degrade.

Our research identified safer alternative plasticizers, and we found that these alternatives are currently used in sealant, caulk, and adhesive products already on the market. Products that use alternatives span a range of base polymer types and are suitable for the broad

[27] https://apps.ecology.wa.gov/publications/SummaryPages/2204018.html
[28] https://apps.ecology.wa.gov/publications/SummaryPages/2504031.html

range of applications where these products are used, showing the safer alternatives identified are feasible and available.

Our draft regulatory determination is a restriction on ortho-phthalates in sealants, caulks, and adhesives. This restriction will reduce a significant use of these chemicals and source of potential exposure to people and the environment in Washington.

Solid deodorizers (1,4-dichlorobenzene)

Solid deodorizers are products that are sold as solids but that sublime (akin to evaporating or dissolving directly from a solid to a gas) to room air as part of their intended use. This includes toilet, garbage, and urinal deodorizer blocks, and continuous action air fresheners. The product category doesn't include deodorizing products sold as liquid, or as packs or powders that are intended to dissolve in water.

In our Cycle 2, Phase 2 technical report,[29] we described solid deodorizers as a significant use of a specific organochlorine substance: 1,4-dichlorobenzene (1,4-DCB). Solid deodorizer products sold on the market are comprised of up to 99.9 percent 1,4-DCB by weight, as reported by manufacturers in safety data sheets. Past work by the federal Agency for Toxic Substances and Disease Registry in 2006 estimated that 25 to 55 percent of all uses of 1,4-DCB were for solid deodorants. Using aggregate production volumes for 1,4-DCB reported in 2019, we estimated that 287,000–718,000 pounds of 1,4-DCB were used in deodorizers in Washington in the same year. We noted there is a large degree of uncertainty in this estimate, but even considering this uncertainty, solid deodorizers clearly are a significant use of 1,4-DCB as an organochlorine substance.

People have the potential to be exposed to 1,4-DCB through inhalation in rooms where these products are used. Some populations are anticipated or known to have disproportionately higher exposures to this chemical, including janitorial workers.

We identified alternatives that can function as room deodorizers. These alternatives can be used in the same spaces as 1,4-DCB deodorizers are used and effectively absorb or mask odors. These alternative chemicals and materials meet either our minimum or additional criteria for safer. The alternatives identified are available in deodorizer products on the market, and as such are considered feasible and available for the application of interest.

Our draft regulatory determination is a restriction on 1,4-DCB in solid deodorizers. This restriction will reduce a significant use of this chemical and a potential source of exposure in people. This restriction is necessary to protect sensitive populations, including people with occupational exposure.

[29] https://apps.ecology.wa.gov/publications/documents/2504031.pdf

Summary and draft schedule



Figure 1: The four phases of a Safer Products for Washington implementation cycle, including the statutory deadlines for completing each phase of Cycle 2.

Ecology will open a 45-day public comment period on this draft report to provide interested parties the opportunity for input and feedback. After considering comments received, Ecology intends to publish a final regulatory determinations report by June 2027.

Ecology intends to begin the rulemaking process in late 2026. We intend to release a preliminary draft rule for discussion and public input in the summer or early autumn of 2027. By early 2028, Ecology expects to release the formal draft rule for public comment and host hearings for people to provide formal testimony. Ecology expects to adopt rules to implement the final regulatory determinations by June 2028, unless the Legislature makes changes to these determinations or the statutory timeline. The law currently requires Ecology to adopt the final regulatory actions in rule by June 2028.

Conclusion

As part of the Safer Products for Washington program's second review cycle, Ecology has made regulatory determinations for 11 chemicals or chemical classes present in 15 categories of consumer products.

Ecology identified safer, feasible, and available alternatives to priority chemicals in 14 product categories and determined a restriction was appropriate for these categories. We also recommend reporting requirements for 4 categories, and no action for 1 category.

Restrictions will help reduce significant sources and uses of priority chemicals in consumer products. Similarly, reporting requirements will help promote transparency and provide us with additional information for future decision making, particularly as we continue our research on safer alternatives for these products in future cycles of Safer Products for Washington.

Publication information

This report is available on the Department of Ecology's website at https://apps.ecology.wa.gov/ecy/publications/SummaryPages/2604042.html

Related Information

Safer Products for Washington Cycle 2

- Cycle 2, Phase 3: Draft Technical Supporting Documentation for Regulatory Determinations Report to Legislature (https://apps.ecology.wa.gov/publications/SummaryPages/2604043.html)
- Cycle 2, Phase 3: Draft Market Analysis for Safer Products for Washington (https://apps.ecology.wa.gov/publications/SummaryPages/2604045.html)
- Cycle 2, Phase 2: Report to the Legislature on Priority Products (https://apps.ecology.wa.gov/publications/SummaryPages/2504030.html)
- Cycle 2, Phase 2: Technical Supporting Documentation for Priority Consumer Products (https://apps.ecology.wa.gov/publications/SummaryPages/2504031.html)
- Cycle 2, Phase 1: Report to the Legislature on Priority Chemicals (https://apps.ecology.wa.gov/publications/SummaryPages/2404025.html)
- Cycle 2, Phase 1: Technical Supporting Documentation for Priority Chemicals (https://apps.ecology.wa.gov/publications/SummaryPages/2404026.html)

Safer Products for Washington Cycle 1.5

- Cycle 1.5, Phase 3: Regulatory Determinations Report to the Legislature (https://apps.ecology.wa.gov/publications/SummaryPages/2404023.html)
- Cycle 1.5, Phase 3: Technical Supporting Documentation for Regulatory Determinations (https://apps.ecology.wa.gov/publications/summarypages/2404024.html)

Safer Products for Washington Cycle 1

- Cycle 1, Phase 3: Regulatory Determinations Report to the Legislature (https://apps.ecology.wa.gov/publications/SummaryPages/2204018.html)

Contact information

Hazardous Waste and Toxics Reduction Program
Washington State Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600

Phone: 360-407-6700

Website: Washington State Department of Ecology[30]

ADA accessibility

To request an ADA accommodation, email HWTRPubs@ecy.wa.gov, call 360-407-6700, or dial 711 to call us through the Washington Telecommunication relay for TTY. Visit ecology.wa.gov/ADA for more information.

Language services

We offer free translation and interpretation services. To request these services, email HWTRpubs@ecy.wa.gov or call 360-407-6700. If you call, ask for an interpreter and wait to be connected with one.

[30] www.ecology.wa.gov/contact