

The webinar will begin shortly.

# Safer Products for Washington:

Aftermarket stain- and water-resistance treatments (9:30 a.m.)  
Personal care and beauty products (12 p.m.)

Implementing RCW 70A.350: The Pollution Prevention for Healthy People and Puget Sound Act

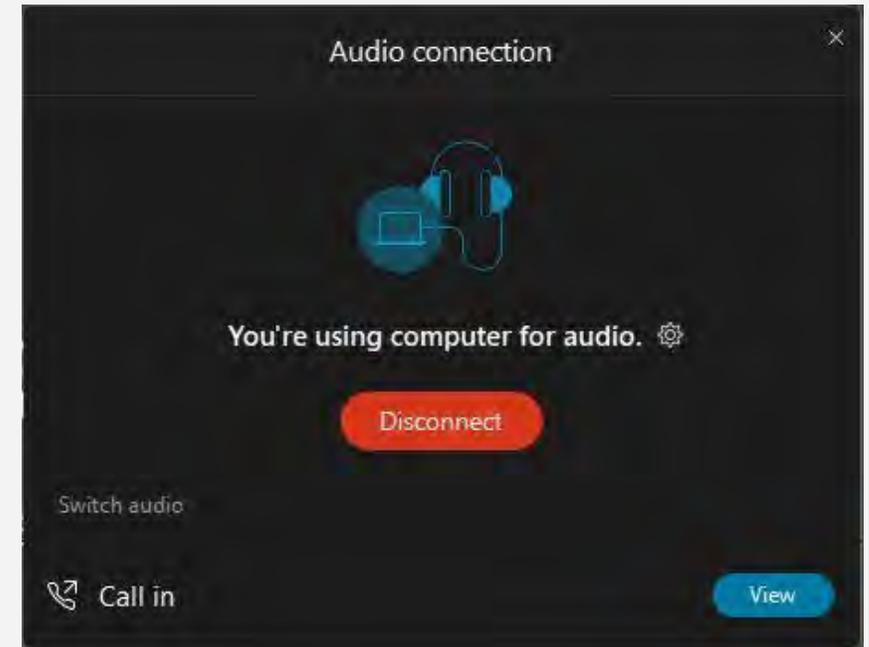
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JULY 27, 2021



# Audio connection logistics

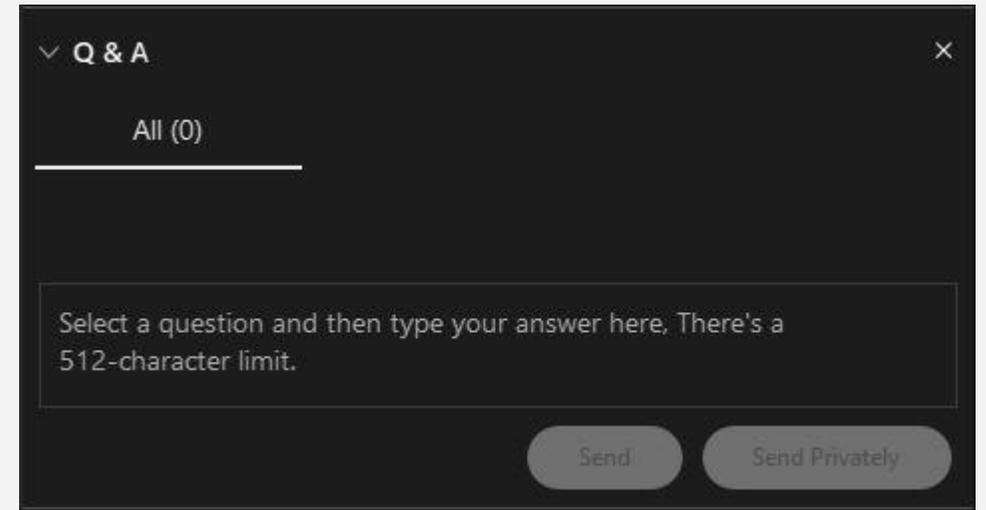
- For audio connection, we recommend using your computer speaker.
- If you are unable to join using computer audio, use “Call in” to access dial-in information.
- To open the audio options, select the three dots icon in the menu at the bottom of your screen.



# Webinar logistics

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- All lines are muted.
- Questions and input go in the Q & A box.
  - Ask anytime, we will address at the end.
- Technical difficulty issues go in the chat box.
- To open the chat box, select the chat button at the lower right hand side of your screen.
- In the event of major technical difficulties, we will reschedule the webinar.
- **NOTE:** Any reference in this presentation to persons, organizations, services, or activities does not constitute or imply endorsement, recommendation, or preference by the Washington State Department of Ecology.



# Safer Products for Washington:

## Aftermarket stain- and water-resistance treatments

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From Ecology: Cheryl Niemi, Marissa Smith, Saskia van Bergen, Craig Manahan, Sascha Stump, Rae Eaton, Kimberly Goetz, Lauren Tamboer, and Amber Sergent.

From Health: Holly Davies, Elinor Fanning, and Emily Horton.



# Today's schedule

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1. 9:30—Recap: Safer Products for Washington background
  2. 9:40—Aftermarket stain- and water-resistance treatments
  3. 10:20—Questions and discussion on treatments
- 11:30—Break
1. 12:00—Recap: Safer Products for Washington background
  2. 12:10—Personal care products
  3. 12:50—Questions and discussion on care products
  4. 2:00—Overview of all product categories





## Section 1. Safer Products for WA background



## Safer Products for WA background

- Pollution Prevention for Healthy People and Puget Sound Act, signed into law May 2019.
- Act aims to reduce exposures to priority chemicals resulting from the use of consumer products.
- Act sets requirements for Ecology to:
  - Report to Legislature.
  - Consider and use information in specific ways.
  - Enact rulemaking (if needed).
- Safer Products for Washington is the implementation program for RCW 70A.350.

# Safer Products for WA Implementation Process



## A reminder: Phase 2 priority products

| Priority chemical or chemical class          | Priority product in the report                            |
|--|---|
| Flame retardants                             | Electric and electronic equipment                         |
| Flame retardants                             | Recreational polyurethane foam                            |
| PCBs   | Paints and printing inks                                  |
| PFAS   | Carpet and rugs   |
| <b>PFAS</b>                                  | <b>Aftermarket stain- and water-resistance treatments</b> |
| PFAS   | Leather and textile furnishings                           |
| Phenolic compounds (alkylphenol ethoxylates) | Laundry detergent   |
| Phenolic compounds (bisphenols)              | Thermal paper   |
| Phenolic compounds (bisphenols)              | Food and drink cans                                       |
| Phthalates                                   | Flooring  |
| <b>Phthalates</b>                            | <b>Personal care products</b>                             |



# Regulatory determinations

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- In order to restrict the use of a priority chemical, **safer** alternatives must be **feasible** and **available**.
  - The restriction must:
    - Reduce a significant source or use of priority chemical(s).
- OR**
- Be necessary to protect sensitive species or sensitive populations.



## Safer in the law

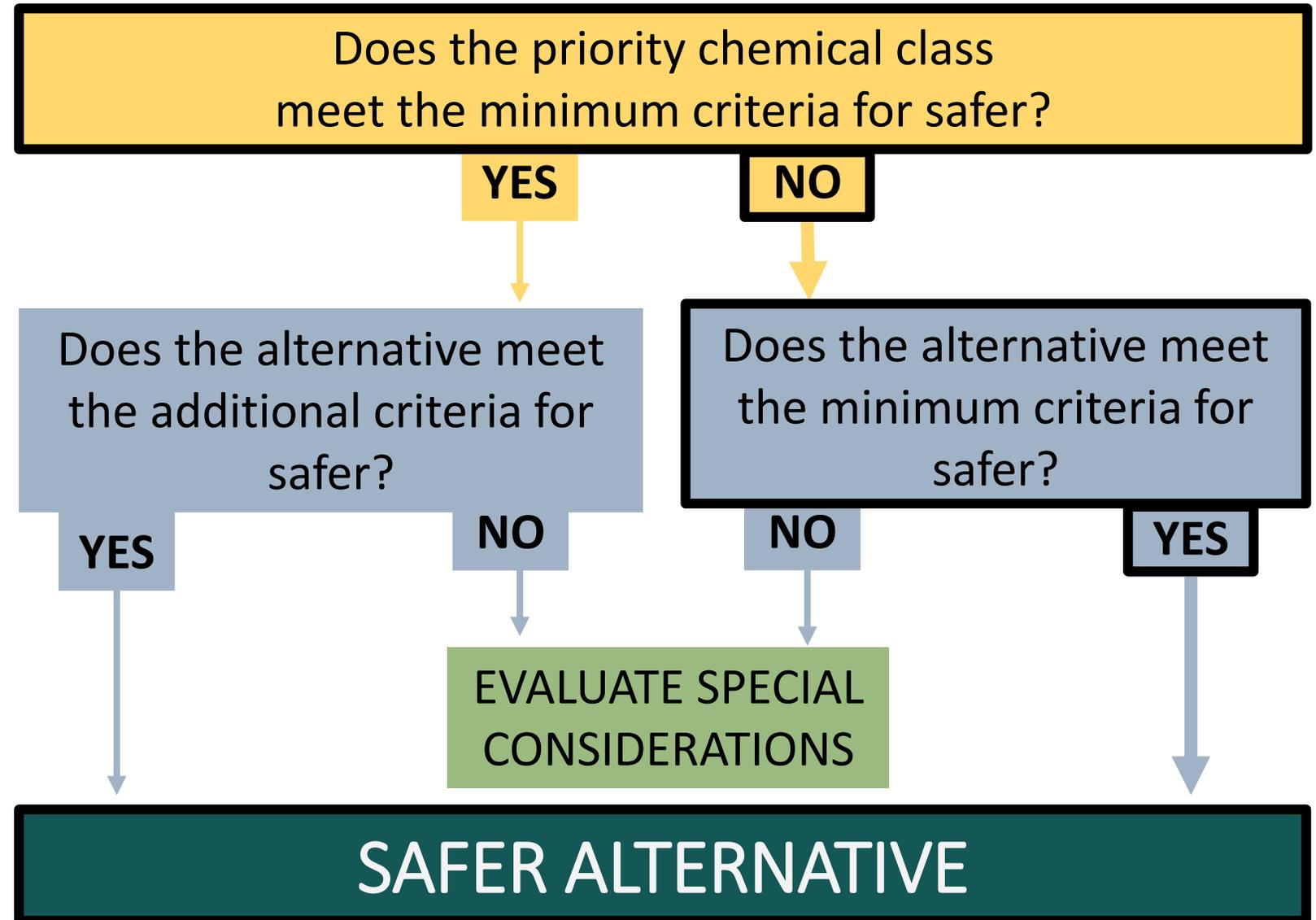
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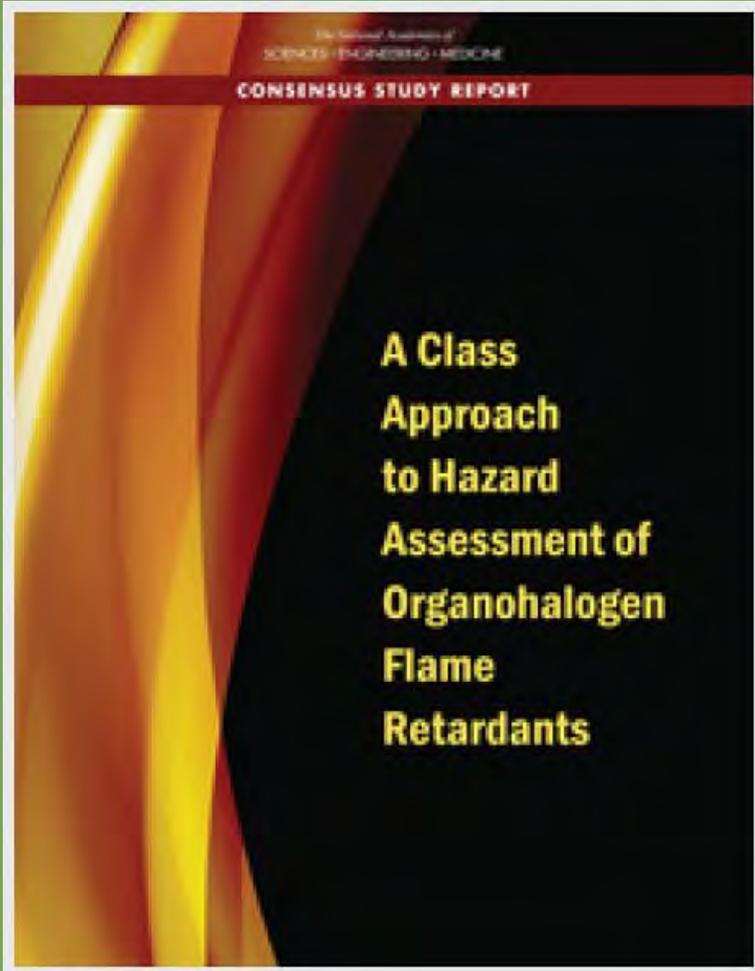
- Safer is defined in the law as “less hazardous to humans or the environment than the existing chemical or process.”
- A safer alternative to a particular chemical may include:
  - A chemical substitute.
  - A change in materials or design that eliminates the need for a chemical alternative.



Criteria for safer is a *spectrum*

# Process for identifying safer alternatives





## How can we assess classes of chemicals?

1. If there are all data rich chemicals → Assess the class based on data rich chemicals.
2. If there are all data poor chemicals → Unlikely to be a priority chemical class.
3. If there are data rich and data poor chemicals → Assess the class based on data rich chemicals.
4. If there is variable or discordant hazard data → Three options.

# Minimum criteria for safer

- Chemicals used to function like priority chemicals cannot have:
  - High concerns for carcinogenicity, mutagenicity, reproductive or developmental toxicity, or endocrine disruption.
  - High toxicity in other ways and very persistent and/or very bioaccumulative.
  - Very high persistence and very high bioaccumulation.
- For a full description—see the working draft criteria.

# Certifications and assessments that meet our minimum criteria for safer

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Examples of chemicals that meet this criteria:

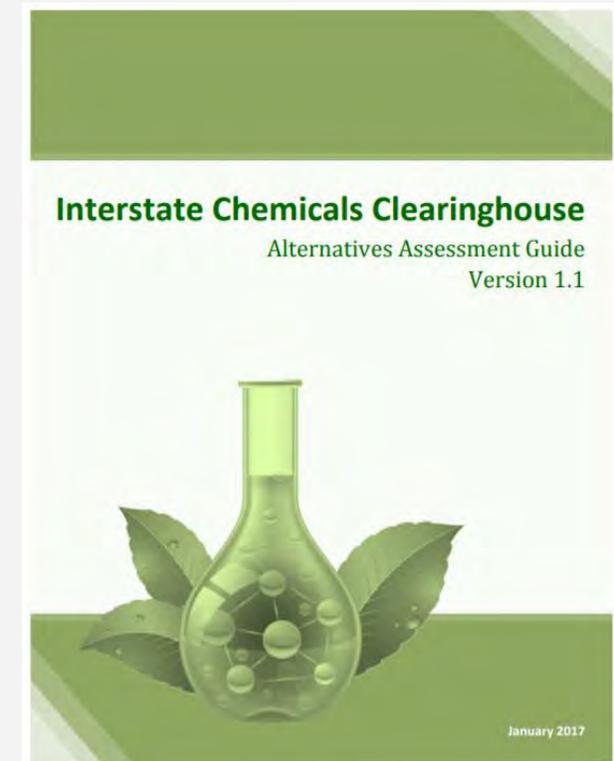
- GreenScreen® Benchmark 2, 3, and 4.
- EPA Safer Chemical Ingredients List evaluated against the master criteria.

Examples of products that **may** meet this criteria:

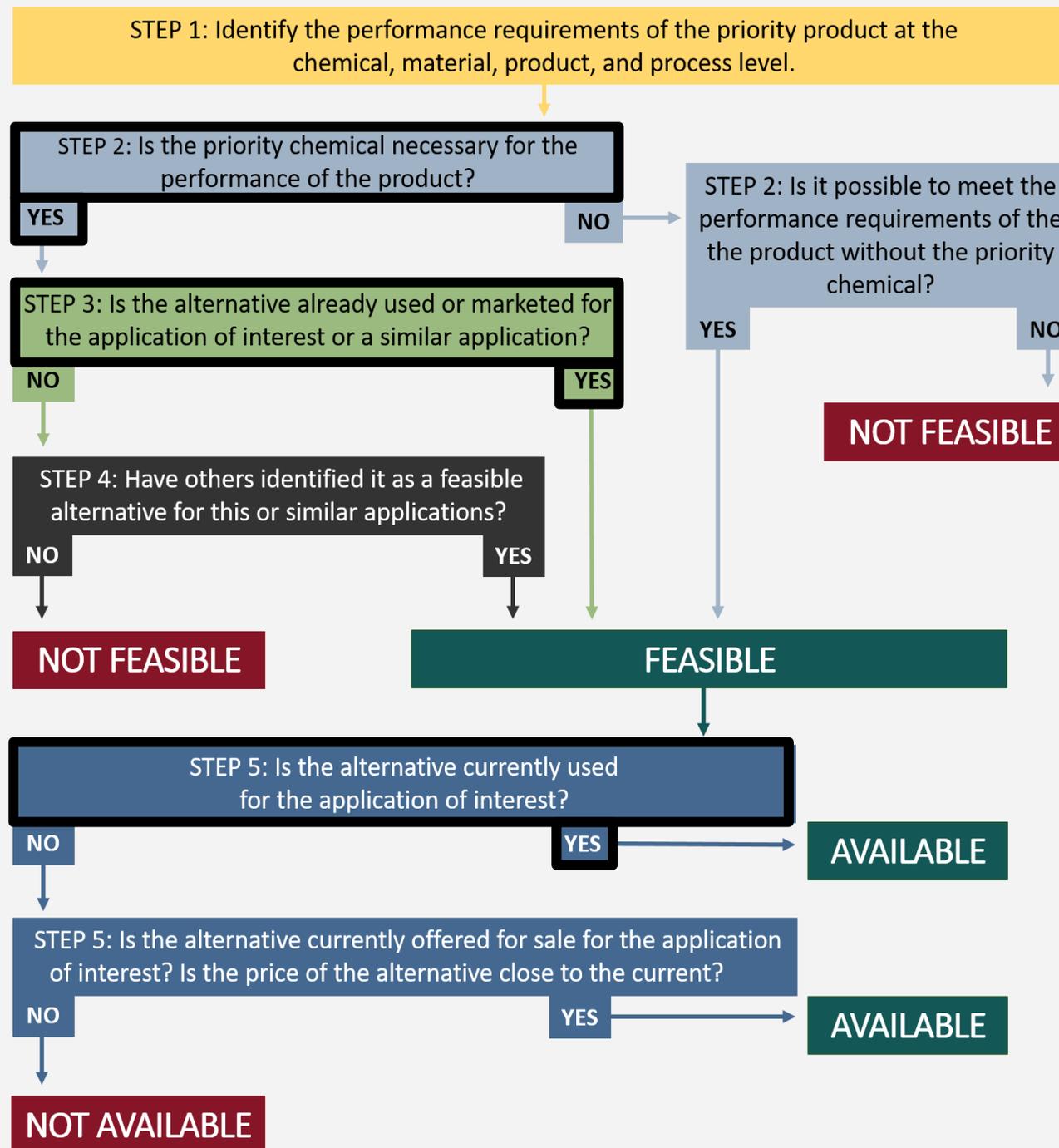
- GreenScreen Certified™ Gold, Gold+, and Platinum Products\*
  - \*Certification levels depends on product type.
- EPA Safer Choice Products
- Cradle to Cradle Certified™ Gold and Platinum Material Health Certificate products
  - More documentation of persistence and bioaccumulation may be necessary.

# Feasible and available

- RCW 70A.350 requires that Ecology determine that safer alternatives are “feasible and available” before restricting the use of a priority chemical.
- Not defined in the statute.
- IC2 Alternatives Assessment Guide (2017)
  - Modules to assess potential alternatives.
  - Performance module—technical feasibility.
  - Cost and availability module—price competitive and available in sufficient quantity.



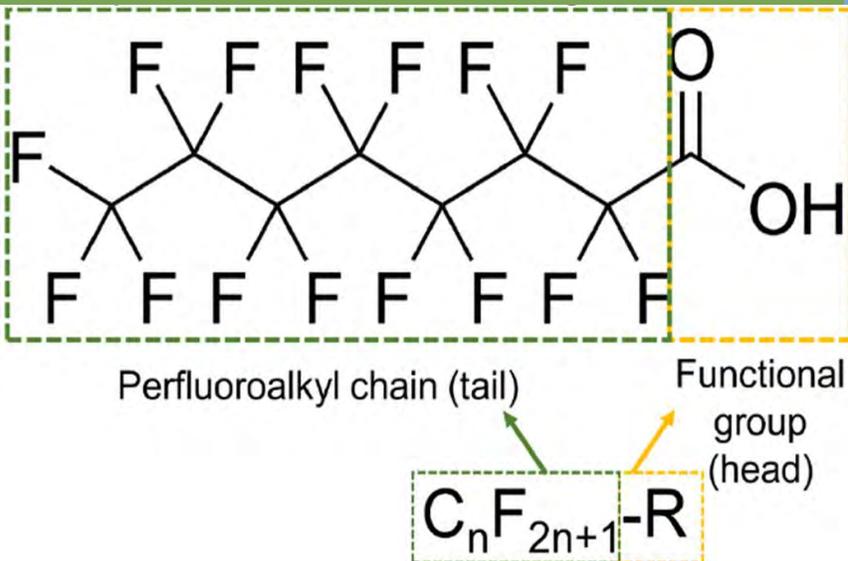
# Process for identifying feasible and available alternatives





## Section 2. Stain- and water-resistance treatments

## Scope of the priority chemical class



Perfluororalkyl acid (PFAA)  
example structure  
(Blake and Fenton, 2020).

- RCW 70A.350.010 defines “perfluoroalkyl and polyfluoroalkyl substances” or “PFAS chemicals” as **a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom.**
- Carbon-fluorine bond defines the class—hard to break, causing PFAS to be very highly persistent.
- Accumulate over time, increasing exposure to sensitive populations and species.
- Voluntary agreements to phase out PFAS and restrictions on the use of some PFAS have led to regrettable substitutions.



## The priority product category

- In 2019, Legislature listed PFAS as a priority chemical class.
- Identified aftermarket stain- and water-resistance treatments (for textile and leather consumer products used in residential and commercial settings and in vehicles) as a priority product.
- They are a significant source or use of PFAS.
- We identified alternatives for some applications that are safer, feasible, and available.
- For other applications, our evaluation is ongoing.
- We welcome your input!



## Aftermarket treatments are a significant source of PFAS

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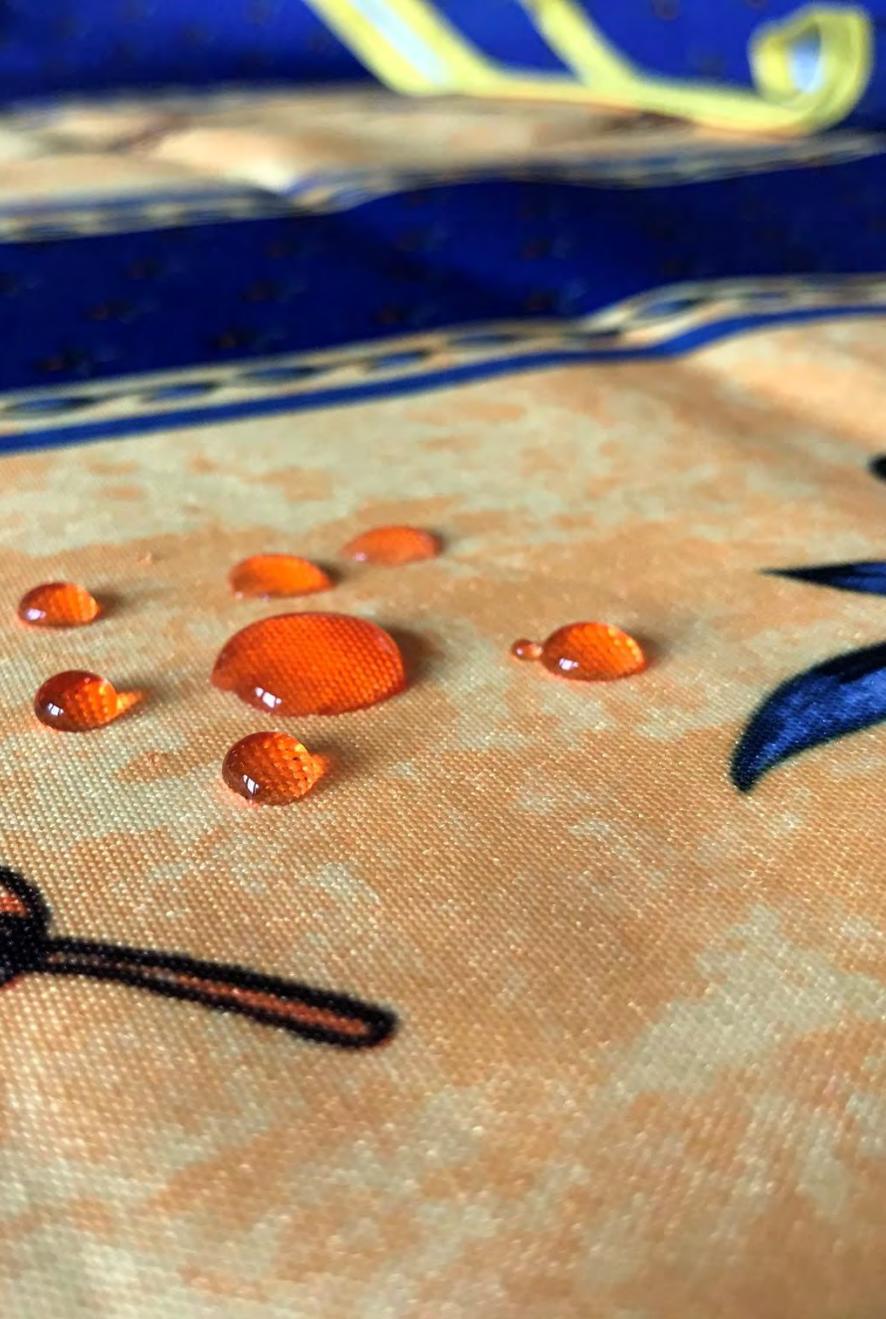
- Stain- and water-resistance treatments contribute to the amount of PFAS in our homes, workplaces, and environment.
- Estimated 5 million pounds of treatments are used on carpet alone each year in Washington.
  - Other uses of stain- and water-resistance treatments include furniture, home textiles, apparel, and shoes.
- People can be exposed to PFAS:
  - While applying stain- and water-resistance treatments.
  - As the product wears off over time.



## Aftermarket treatments are a significant source of PFAS

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- Children and infants spend more time on or near the floor.
- Disproportionately exposed to PFAS that accumulate in dust.
  - Epidemiological studies show children living in homes with treated carpet and furniture have higher PFAS exposure.
- Restriction on the use of PFAS in aftermarket treatments would reduce a significant source of PFAS exposure.



## Hazards of PFAS

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- All PFAS are persistent, or break down to persistent PFAS.
- Many bioaccumulate.
- Many have reproductive and developmental toxicity and/or systemic toxicity (including immunotoxicity, neurotoxicity, and thyroid).
- Some are toxic to aquatic organisms.



## PFAS regulation in WA

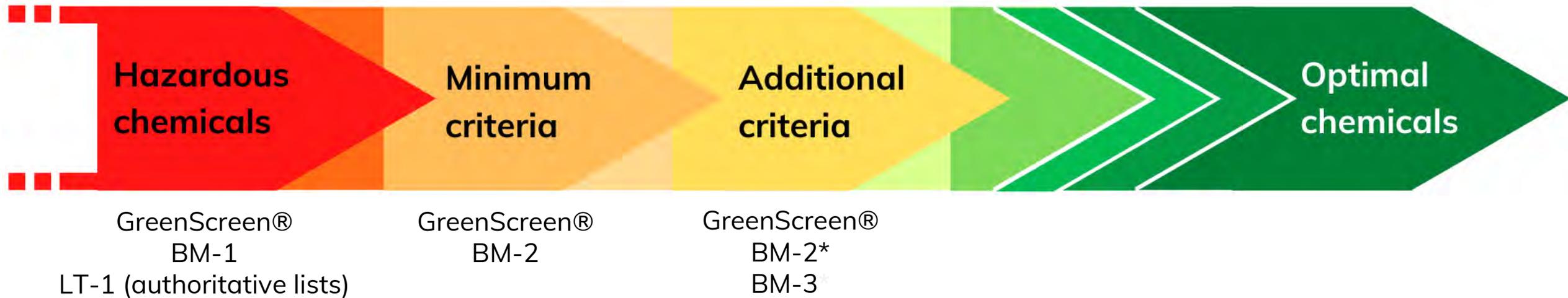
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- As a class, in some **food packaging** applications (RCW 70A.222) and **firefighting foam** (RCW 70A.400).
- WAC 171-333-310 lists PFOS and its salts as **persistent, bioaccumulative, toxic** chemicals.
- WAC 173-334-130 identifies PFOS and PFOA as **chemicals of high concern to children**.

# Identifying data rich chemicals

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- We identified data rich chemicals by looking for existing hazard assessments:
  - GreenScreen® and List Translator (LT):
    - GreenScreens®—conducted by a licensed profiler, publicly available.
    - List Translator reviews authoritative lists and identifies chemicals that would likely be Benchmark-1 chemicals.
  - Other hazard assessment methods are possible, but would need to be:
    - Compatible with our criteria for safer and scoring methodology.
    - Publicly available or third-party reviewed.
- Identified 15 data rich PFAS that either score **LT-1** or **GreenScreen® Benchmark-1**.



*\*not all BM-2 meet additional criteria*

Criteria for safer is a spectrum

# Hazards of data rich chemicals—LT-1 PFAS

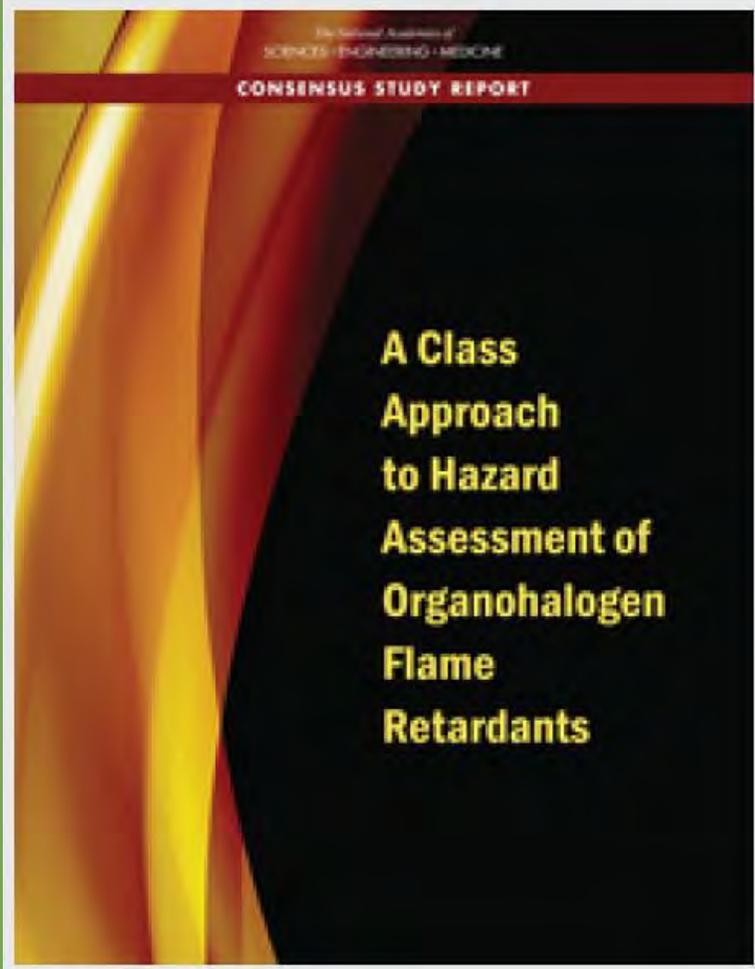
| CAS#       | Common name                        | Hazards  | Example authoritative lists  |
|------------|------------------------------------|--|--|
| 335-67-1   | Perfluorooctanoic acid             | Developmental toxicity, systemic toxicity, PBT | Cal EPA Prop 65, EU GHS (H360D, H362, H372), UNEP Stockholm Conv.—Persistent Organic Pollutants (Proposed PBT)     |
| 375-95-1   | Perfluorononanoic acid             | Reproductive and developmental toxicity, PBT   | EU GHS (H362 , H360f), EU Annex VI CMR (Category 1B), EU SVHC Authorisation List PBT Candidate                     |
| 1763-23-1  | Perfluorooctanesulfonic acid       | Reproductive and developmental toxicity, PBT   | Cal EPA Prop 65, EU Annex VI CMR (Category 1B), UNEP Stockholm Conv.—Persistent Organic Pollutants (PBT)           |
| 3825-26-1  | Ammonium perfluorooctanoate        | Reproductive and developmental toxicity        | EU GHS (H360D, H362), EU Annex VI CMR (Category 1B)  |
| 2795-39-3  | Potassium perfluorooctanesulfonate | Reproductive and developmental toxicity, PBT   | EU GHS (H360D, H362), EU Annex VI CMR (Category 1B), OSPAR PBT   |
| 29081-56-9 | Ammonium perfluorooctanesulfonate  | Reproductive and developmental toxicity, PBT   | EU GHS (H360D), EU Annex VI CMR (Category 1B), OSPAR PBT   |
| 116-14-3   | Tetrafluoroethylene                | Carcinogenicity                                | Cal EPA Prop 65, IARC Group 2A, MAK Group 2, NIH (report on carcinogens—reasonably anticipated to be carcinogenic) |

# Hazards of data rich chemicals

| CAS#        | Common name                               | GreenScreen® score | Endpoints of concern (H or vH)  |
|-------------|---|--------------------|---|
| 116-15-4    | Hexafluoropropylene                       | BM-1               | <b>Carcinogenicity</b> , neurotoxicity (single), systemic toxicity (single and repeat), skin and eye irritation, and <b>persistence</b> |
| 86508-42-1  | Perfluorocarbon compounds                 | BM-1               | <b>Persistence</b> and <b>bioaccumulation</b>   |
| 297730-93-9 | 3-Ethoxyperfluoro(2-methylhexane)         | BM-1               | <b>Persistence</b> , <b>bioaccumulation</b> , and chronic aquatic toxicity  |
| 29420-49-3  | Perfluorobutanesulfonate, potassium salt  | BM-1               | <b>Persistence</b> , eye irritation   |
| 27905-45-9  | 1,1,2,2-Tetrahydroperfluorodecyl acrylate | BM-1               | <b>Persistence</b> , <b>bioaccumulation</b> , neurotoxicity (repeat), and <b>systemic toxicity</b> (repeat)                             |
| 9002-84-0   | Polytef                                   | BM-1               | <b>Persistence</b> , <b>systemic toxicity</b>   |
| 307-24-4    | Perfluorohexanoic acid                    | BM-1               | <b>Persistence</b> , skin and eye irritation, and <b>systemic toxicity</b> (single)   |
| 647-42-7    | 2- Perfluorohexylethanol                  | BM-1               | Acute toxicity, <b>systemic toxicity</b> (single and repeat), aquatic toxicity (acute and chronic), and <b>persistence</b>              |



Criteria for safer is a *spectrum*



## How can we assess classes of chemicals?

1. If there are all data rich chemicals → Assess the class based on data rich chemicals.
2. If there are all data poor chemicals → Unlikely to be a priority chemical class.
3. If there are data rich and data poor chemicals → Assess the class based on data rich chemicals.
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## Conclusion on the hazards of PFAS

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- PFAS as a class do not meet our minimum criteria for safer.
- Alternative chemicals used to provide stain or water resistance must meet our minimum criteria for safer.
- Alternative processes that avoid the use of PFAS or alternative chemicals are safer—provided they do not contain any known regrettable substitutions.

## EPA SCIL and Safer Choice

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- Chemicals evaluated against the Safer Chemical Ingredients List (SCIL) Master Criteria meet our minimum and additional criteria for safer.
  - Functional criteria are modified from the SCIL Mater Criteria to identify “best in class” alternatives.
  - Sometimes functional criteria meet our minimum criteria for safer.
    - Example: Polymer criteria passes our minimum criteria for safer.
- Safer Choice products can meet our minimum or additional criteria for safer.
  - Depends on the function of the chemical under evaluation.



## Function of PFAS in aftermarket stain- and water-resistance treatments

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- Function PFAS provides varies slightly by product category.
- **Outdoor apparel and gear treatments:** Provide water-proofing to keep people and gear dry.
  - Rain coats, shoes, tents, and outdoor gear.
- **Indoor textile treatments:** Increase cleanability by providing stain resistance.
  - Carpet, furniture, or other upholstery (including vehicle interiors).
- **Outdoor textile treatments:** Provide water-proofing and increase cleanability.
  - Furniture and other upholstery.

# Alternative treatments for outdoor apparel and gear

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- We are currently assessing Nikwax products:
  - Fabric & Leather Proof:
    - Marketed as leaving a flexible, water-repellent treatment on individual fibers of fabric and leather products.
  - TX.Direct wash-in or spray on:
    - Waterproofing for wet weather clothing.
    - Marketed as leaving a flexible, water-repellent treatment on individual fibers.
- We don't know if this product is safer yet—optimistic based on compliance with a comprehensive restricted substance list.
- Feasible and available.
  - Sold at REI and Amazon.

## Alternatives to PFAS in leather treatments

| Chemicals listed on EPA's Safer Chemical Ingredients List | CAS#        |
|---|-------------|
| Lanolin oil <sup>^</sup>                                  | 70321-63-0  |
| Beeswax, white  | 8012-89-3   |
| Safflower oil   | 8001-23-8   |
| Vitamin E   | N/A         |
| Orange Oil <sup>*</sup>                                   | 8008-57-9   |
| Butyrospermum parkii (shea) butter                        | 194043-92-0 |
| Butyrospermum parkii (shea) oil                           | 91080-23-8  |
| Carnauba wax  | 8015-86-9   |

- \* = yellow triangle, still under evaluation
- ^ = processing aid and additive

## SCIL-based leather treatments

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- Otterwax Leathercare (Portland, OR—sold online)
  - Boot Wax: Beeswax and lanolin listed.
    - “Hydrates leather to naturally repel water and stains.”
    - “Provides a long-lasting protective seal.”
  - Leather Oil: Safflower oil, vitamin e, sweet orange oil listed.
    - “Safe to use on all colors and types of leather to help prevent and repair dry cracking, scuffs, and minor scratches.”
    - “Oil is an especially popular choice for maintaining leather furniture.”
- We’re still evaluating a few ingredients in boot wax and leather oil, but likely safer, feasible, and available.

# Safer Choice carpet care products are safer, feasible, and available

| Alternative  | Product name   | Product manufacturer                      | Priority products        | Qualifying language   |
|--|--|---|--------------------------|---|
| Proprietary sulfonated anionic aqueous polymer   | Bissell Advanced Clean + Protect                           | BISSELL Homecare, Inc.                    | Home carpets             | StainProtect™ Technology to keep carpets cleaner longer.  |
| Proprietary sulfonated anionic aqueous polymer   | Bissell Clean + Protect                                    | BISSELL Homecare, Inc.                    | Home carpets             | StainProtect™ Technology to keep carpets cleaner longer.  |
| Proprietary anionic polymer  | EncapuGuard GREEN  | Bridgepoint Systems (Bridgewater Company) | Business carpet          | Post cleaning protective treatment that provides soil resistance, stain protection, wicking prevention, and neutralizing. |
| Proprietary anionic polymer, Anionic detergent polymer, Functionalized anionic polymer | TOTALCARE® Green Carpet Stain & Soil Remover – Concentrate | SHAW®                                     | Home and business carpet | Provides protection against reoccurring spots.  |



## Alternative processes for increasing cleanability of carpets

Using inherently stain resistant rugs in high traffic areas to protect carpet.

- Ruggables—made from inherently stain resistant fabric (polyester) and washable
  - Available online.
- Burrow—made from inherently stain resistant fabric (olefin, polypropylene, and wool)
  - Available online.
- Ikea—made from inherently stain resistant fabric (polyester or wool)
  - Available in store and online.

**Alternative processes for increasing cleanability are safer, feasible, and available.**

# Safer Choice upholstery care products are safer, feasible, and available

| Alternative                                    | Product name                     | Product manufacturer   | Priority products | Qualifying language  |
|--|----------------------------------|------------------------|-------------------|--|
| Proprietary sulfonated anionic aqueous polymer | Bissell Advanced Clean + Protect | BISSELL Homecare, Inc. | Upholstery        | Protect from future staining with StainProtect™ stain protection   |
| Proprietary sulfonated anionic aqueous polymer | Bissell Clean + Protect          | BISSELL Homecare, Inc. | Upholstery        | Formulated with StainProtect™ Technology to keep carpets cleaner longer. Safe to use on carpet, area rugs, and upholstery. |

Nikwax fabric and leather treatment could be used to provide water-resistance, which can increase cleanability.



## Alternative processes to increase cleanability of existing furniture

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Removable washable covers to protect furniture and increase cleanability:

- Ikea—furniture with removable, machine-washable covers.
  - “Covers help protect your furniture against dirt and stains.”
  - Durable, long-lasting, and washable.
- Target, Amazon Surefit, and others sell removable, machine-washable furniture covers.
  - “Slipcover cleans up easily in the machine.”
  - Flexible fit to cover different furniture shapes and designs.



## Alternative processes to increase cleanability of existing furniture

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Removable washable covers to protect furniture and increase cleanability:

- Walmart, Home Depot, Amazon, and others sell removable, machine-washable vehicle seat covers.
  - “Protect your vehicle's interior from spills, dust, debris, and stains.”
  - Universal fit application.

**Alternative processes for protecting furniture are safer, feasible, and available.**

# Alternative processes to increase cleanability of furniture

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- Designing alternative products using inherently stain resistant fabric.
  - Burrow—furniture made from inherently stain resistant fabric (olefin, polypropylene, and wool).
- Designing alternative products using inherently stain resistant fabric that can be washed.
  - Levity—furniture made from inherently stain resistant fabric (polyester) that can be removed and washed, additional polyurethane barrier to protect cushions.

**Alternative processes for increasing the cleanability of furniture are safer, feasible, and available.**

# Alternative processes to increase cleanability of carpets, furniture, and other upholstery

- Instead of stain-resistance treatments, stain removers and cleaners can be used.
- Process does not require chemicals that provide the function of stain resistance.

| EPA Safer Choice cleaning product name                              | Product manufacturer         | Priority products    | Qualifying language   |
|---|------------------------------|----------------------|---|
| Fabric and Rug Cleaner Maximum Strength                             | Guardian Protection Products | Upholstery or carpet | Water based oxidizer cleaner. Works on all washable fabrics and rugs with cleaning codes W or WS.   |
| Upholstery Stain Remover – Gold & Upholstery Stain Remover – Purple | Crypton, Inc.                | Upholstery           | Professional strength, ready-to-use cleaner is built to remove tough stains. Use [Crypton Gold] in combination with Crypton Purple for stains like mayo and salad dressing. |
| Revitalize Miracle Spotter  | Ecolab, Inc.                 | Upholstery           | An excellent, multi-purpose spotter ideal for both common and the "unknown" spots and stains.   |



## Alternatives for providing water resistance and increasing cleanability of outdoor furniture and upholstery

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- Nikwax could be used to provide water resistance.
  - Still evaluating whether it's safer, but we know it's feasible and available.
- Ikea sells outdoor cushion covers made with yarn that retains less water.
  - Marketed as “water repellent” fabric.
  - Designed for Ikea products.

# Alternatives for providing water resistance and increasing cleanability of outdoor furniture and upholstery

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| Safer Choice cleaning product name | Product manufacturer | Priority products                    | Qualifying language   |
|------------------------------------|----------------------|--------------------------------------|---|
| CLR Outdoor Furniture Cleaner      | CLR                  | Outdoor products (including fabrics) | Specially formulated to remove outdoor dirt and grime quickly and easily. |
| Outdoor Surface Cleaner            | EcoCompounds, Inc.   | Outdoor furniture, awnings           | Strips away mold and mildew. Get the yuck off an outdoor surface.         |

Alternative processes for increasing the cleanability of furniture are safer, feasible, and available.

# Summary of alternatives identified

| Product Type                    | Relevant materials | Alternatives Identified  | Conclusion or Next Steps                 |
|---------------------------------|--------------------|--|--|
| Outdoor gear                    | Technical fabric   | Nikwax TX.Direct   | Feasible and available, evaluating safer |
| Outdoor clothing                | Technical fabric   | Nikwax TX.Direct   | Feasible and available, evaluating safer |
| Outdoor clothing                | Leather            | Nikwax Fabric & Leather Proof and Otterwax treatments  | Feasible and available, evaluating safer |
| Shoes                           | Technical fabric   | Nikwax Fabric & Leather Proof  | Feasible and available, evaluating safer |
| Shoes                           | Leather            | Nikwax Fabric & Leather Proof and Otterwax treatments  | Feasible and available, evaluating safer |
| Carpet                          | Fabric             | Safer Choice carpet treatments, inherently stain resistant rugs, cleaners                            | Safer, feasible, and available           |
| Upholstery (indoor and outdoor) | Fabric             | Safer Choice upholstery treatments, furniture covers, inherently stain resistant furniture, cleaners | Safer, feasible, and available           |
| Upholstery                      | Leather            | Nikwax Fabric & Leather Proof and Otterwax treatments  | Feasible and available, evaluating safer |

# Conclusions

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- Carpet, furniture, and upholstery treatments:
  - There are safer, feasible, and available alternatives to PFAS in aftermarket treatments for carpet, as well as fabric furniture and upholstery.
  - We are still evaluating leather treatments.
- Outdoor apparel and gear (including leather and fabric shoes):
  - Evaluating Nikwax and other leather treatments.
- At this point, **evidence supports a restriction on the use of PFAS in aftermarket treatments for:**
  - **Carpet**
  - **Fabric furniture**
  - **Fabric upholstery**
- Many other aftermarket treatments are PFAS-free and would not be affected by potential restrictions. Safety of these other alternatives currently unknown.

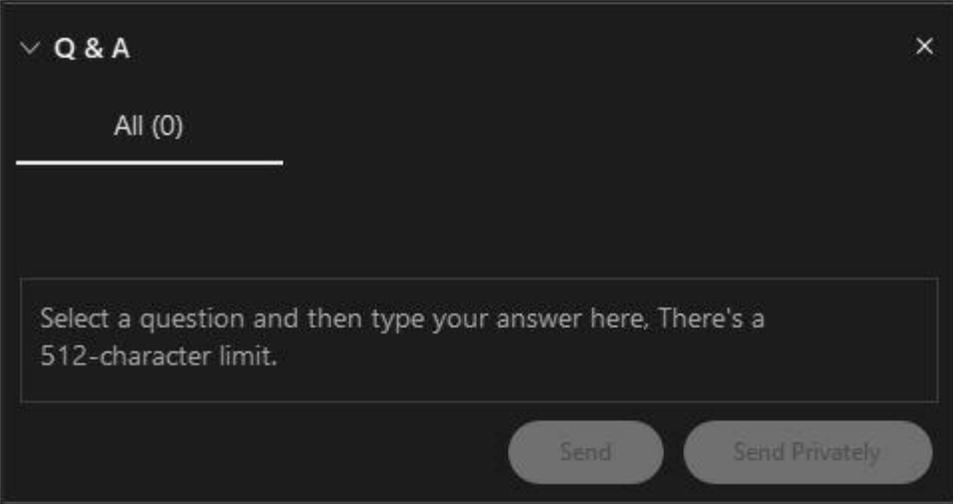


## Section 3. Aftermarket treatments discussion

# Questions? Input to share?

## Type in the Q & A box or raise your hand to unmute.

- Direct your question to everyone using the drop down arrow.
- If you need more than 512 characters, ask your question or give your input verbally.
- Raise your hand and we will unmute you to give your input.
  - If you're dialing in via phone, dial \*3 to raise your hand.



The screenshot shows a dark-themed interface for a Q & A session. At the top left, there is a dropdown arrow and the text "Q & A". At the top right, there is a close button (an "x" icon). Below this, the text "All (0)" is displayed above a horizontal line. A large text input area contains the instruction: "Select a question and then type your answer here, There's a 512-character limit." At the bottom right of the input area, there are two buttons: "Send" and "Send Privately".

# Stain- and water-resistance treatments

## Feedback category

## Feedback from stakeholders during the July 27 discussion

### Analysis process

- How many PFAS are being determined not to be safer based on 15 data rich PFAS?
- Please go into more detail about how you're determining the "safer" characterization of these chemicals as a class.
- The methodology for how you look at classes of chemicals was based on the NAS organohalogen report. Am I correct that the criteria was based on just that one group of chemicals? Or is this a methodology used to assess chemicals broadly?

### Other alternatives, performance of alternatives

- Do we have data addressing performance? You can't ignore that.
- Are you testing Nikwax products or assessing the ingredients?
- Did you also consider acrylic polymers for carpet cleaner and protectors? Some are on the EPA's Safer Choice list.

### Other feedback

- What about deck sealer, cement, etc.? Would like to see additional information on these and other safer products like paints.
- There are many aftermarket treatments that are used on materials other than textiles. Why aren't those included?
- When it comes to exterior textiles, there are a ton of products—things like awnings, the suite of products that are used in sporting arenas that are outdoor textiles, etc. I hope those are included.
- Is there a concern about the dust from vacuuming in the home, especially when emptying the vacuum? Manufacturers should be encouraged to include HEPA filters in small automated vacuums (robotic), they do not all include these. Consumers are not aware of the toxic chemicals found in dust.
- What about cleaning services and handling the wastewater from these services? Concern for worker safety, those handling the treated materials, and the exposure of children to the treatments: hands to mouth, concentrations, etc.

## Where are we at on the other products?

| Priority product                  | Priority chemical class | Status   | Webinar                                |
|-----------------------------------|-------------------------|--|--|
| Personal care and beauty products | Phthalates              | Identified dipropylene glycol as safer, feasible, and available, evaluating benzyl alcohol and alternatives on the Safer Chemical Ingredients List                                     | Update at 12pm                         |
| Vinyl flooring                    | Phthalates              | Ordered data from manufacturers, evaluating alternative plasticizers   | August 17, 9:30 a.m. PST               |
| Carpets and rugs                  | PFAS                    | Evaluating C2CC™ products and non-chemical alternatives  | August 17, 12 p.m. PST                 |
| Furniture and furnishings         | PFAS                    | Looking for alternative ways to increase cleanability. Identified untreated fabric, inherently stain resistant fabric, wipeable fabric, and washable covers as potential alternatives. | Update during carpets and rugs webinar |
| Electric and electronic products  | Flame retardants        | Conducting product testing study, evaluating alternatives listed on TCO's positive list (GreenScreen® BM-2 or higher)  | August 31, 9:30 a.m. PST               |
| Printing inks                     | PCBs                    | Conducting product testing study, working on identifying inks with lower PCB concentrations  | August 31, 12 p.m. PST                 |

**Have ideas or input on any of these products? Please reach out! We'd love to hear from you!**



## Get involved with our Phase 3 process

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- Share your input on the working draft criteria for safer, feasible, and available.
- Don't miss product-specific webinars this summer.
- Invite us to present to your group.
- Reach out to us to set up a meeting with our team.



## Stakeholder involvement next steps

- Make sure you are on our email list!
- Product-specific webinars continuing this summer.
  - Final two webinars just announced!
- Formal public comment period on draft regulatory actions report (Fall 2021 – Winter 2022).

## Webinar resumes at 12 p.m.

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1. 9:30—Recap: Safer Products for Washington background
  2. 9:40—Aftermarket stain- and water-resistance treatments
  3. 10:20—Questions and discussion on treatments
- 11:30—Break**
1. 12:00—Recap: Safer Products for Washington background
  2. 12:10—Personal care products
  3. 12:50—Questions and discussion on care products
  4. 2:00—Overview of all product categories



# Safer Products for Washington: Personal care and beauty products

---

From Ecology: Cheryl Niemi, Marissa Smith, Saskia van Bergen, Craig Manahan, Sascha Stump, Rae Eaton, Kimberly Goetz, Lauren Tamboer, and Amber Sergent.

From Health: Holly Davies, Elinor Fanning, and Emily Horton.



# Today's schedule

---

1. 9:30—Recap: Safer Products for Washington background
  2. 9:40—Aftermarket stain- and water-resistance treatments
  3. 10:20—Questions and discussion on treatments
- 11:30—Break
1. 12:00—Recap: Safer Products for Washington background
  2. 12:10—Personal care products
  3. 12:50—Questions and discussion on care products
  4. 2:00—Overview of all product categories





## Section 1. Safer Products for WA background



## Safer Products for WA background

- Pollution Prevention for Healthy People and Puget Sound Act, signed into law May 2019.
- Act aims to reduce exposures to priority chemicals resulting from the use of consumer products.
- Act sets requirements for Ecology to:
  - Report to Legislature.
  - Consider and use information in specific ways.
  - Enact rulemaking (if needed).
- Safer Products for Washington is the implementation program for RCW 70A.350.

# Safer Products for WA Implementation Process



## A reminder: Phase 2 priority products

| <b>Priority chemical or chemical class</b>   | <b>Priority product in the report</b>             |
|--|---|
| Flame retardants                             | Electric and electronic equipment                 |
| Flame retardants                             | Recreational polyurethane foam                    |
| PCBs   | Paints and printing inks                          |
| PFAS   | Carpet and rugs                                   |
| PFAS   | Aftermarket stain and water resistance treatments |
| PFAS   | Leather and textile furnishings                   |
| Phenolic compounds (alkylphenol ethoxylates) | Laundry detergent                                 |
| Phenolic compounds (bisphenols)              | Thermal paper                                     |
| Phenolic compounds (bisphenols)              | Food and drink cans                               |
| Phthalates                                   | Flooring  |
| <b>Phthalates</b>                            | <b>Personal care products</b>                     |



# Regulatory determinations

---

- In order to restrict the use of a priority chemical, **safer** alternatives must be **feasible** and **available**.
  - The restriction must:
    - Reduce a significant source or use of priority chemical(s).
- OR**
- Be necessary to protect sensitive species or sensitive populations.



## Safer in the law

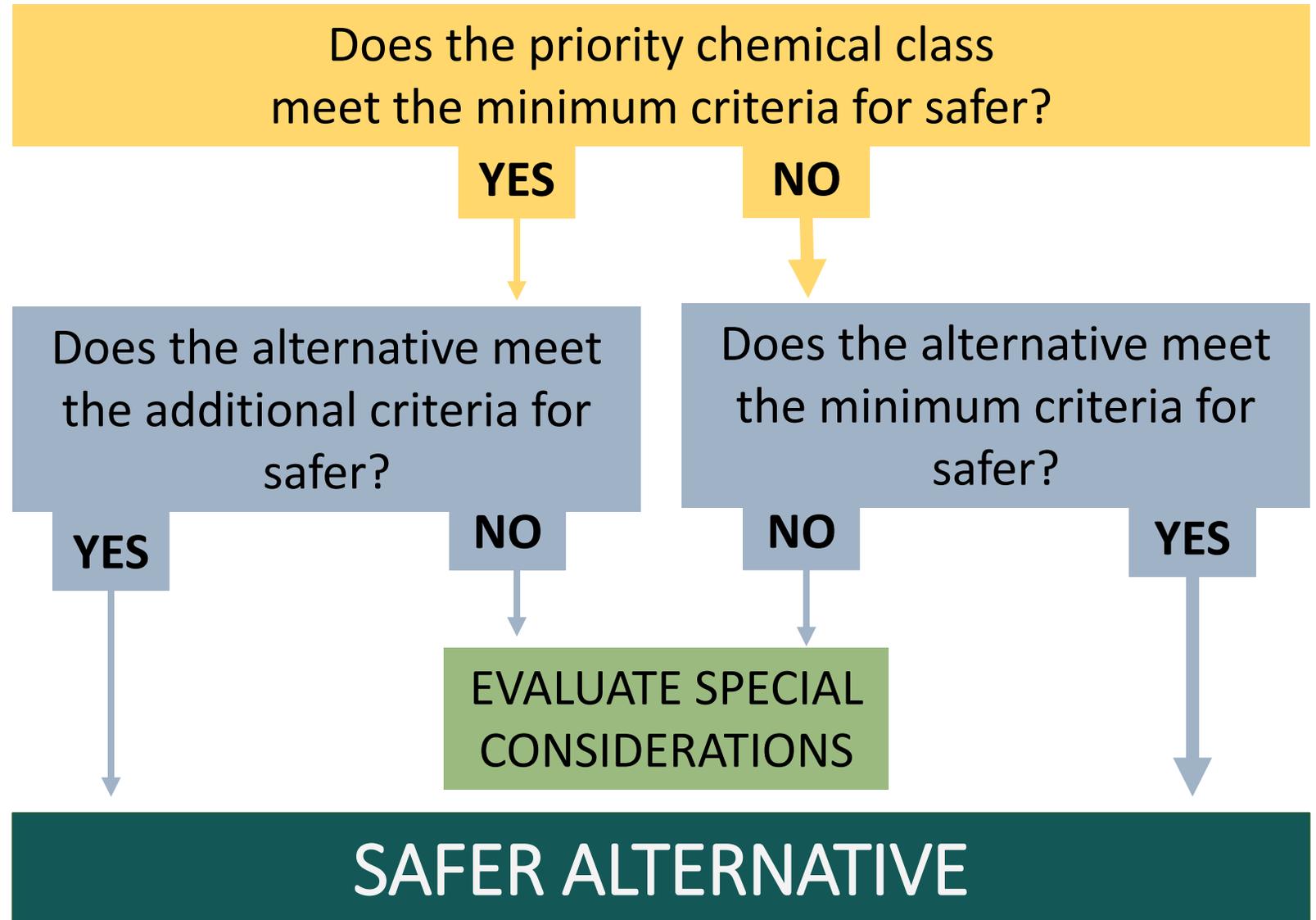
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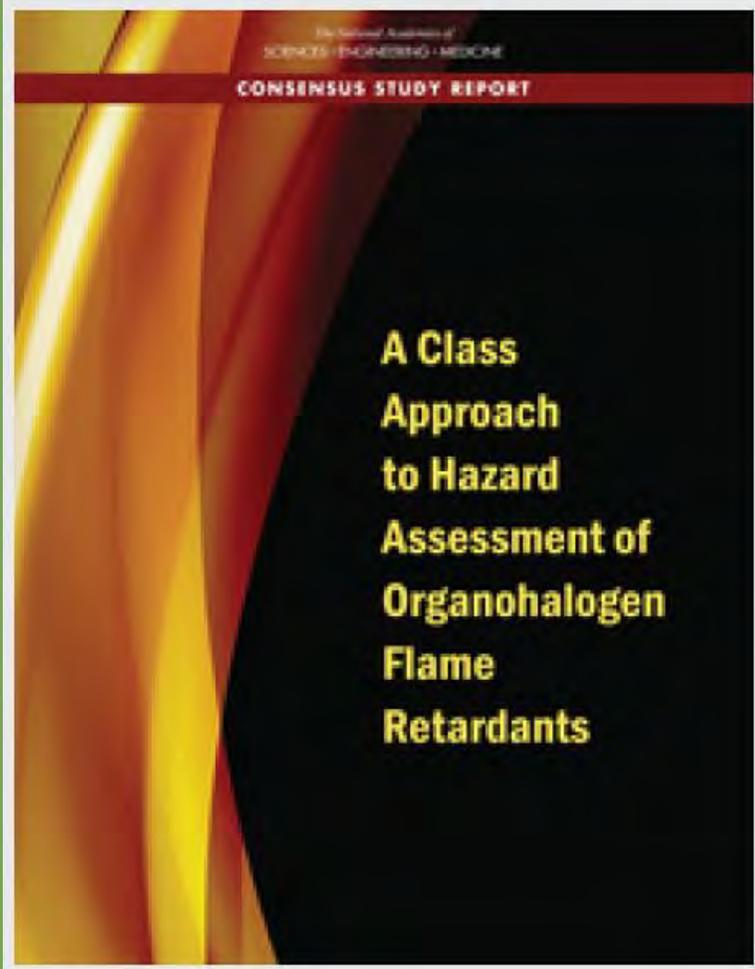
- Safer is defined in the law as “less hazardous to humans or the environment than the existing chemical or process.”
- A safer alternative to a particular chemical may include:
  - A chemical substitute.
  - A change in materials or design that eliminates the need for a chemical alternative.



Criteria for safer is a *spectrum*

# Process for identifying safer alternatives





## How can we assess classes of chemicals?

1. If there are all data rich chemicals → Assess the class based on data rich chemicals.
2. If there are all data poor chemicals → Unlikely to be a priority chemical class.
3. If there are data rich and data poor chemicals → Assess the class based on data rich chemicals.
4. If there is variable or discordant hazard data → Three options.

# Minimum criteria for safer

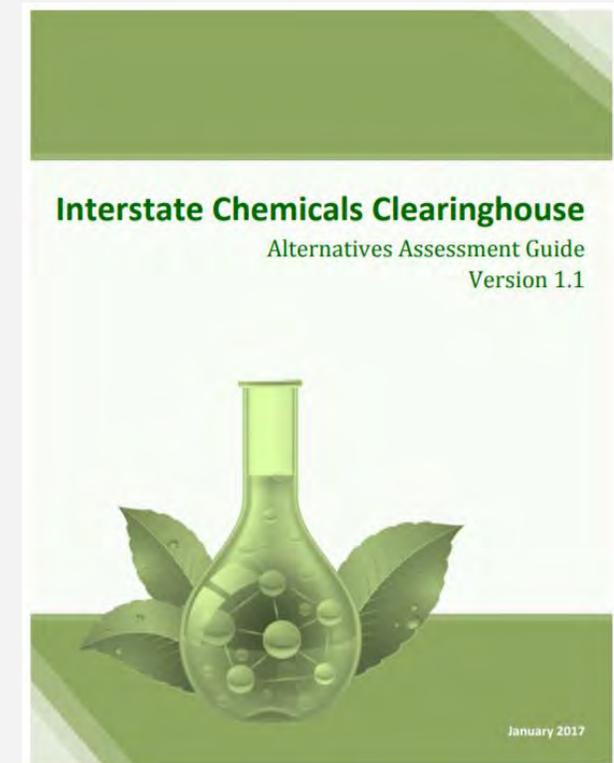
- Chemicals used to function like priority chemicals cannot have:
  - High concerns for carcinogenicity, mutagenicity, reproductive or developmental toxicity, or endocrine disruption.
  - High toxicity in other ways and very persistent and/or very bioaccumulative.
  - Very high persistence and very high bioaccumulation.
- For a full description—see the working draft criteria.

# Additional criteria for safer

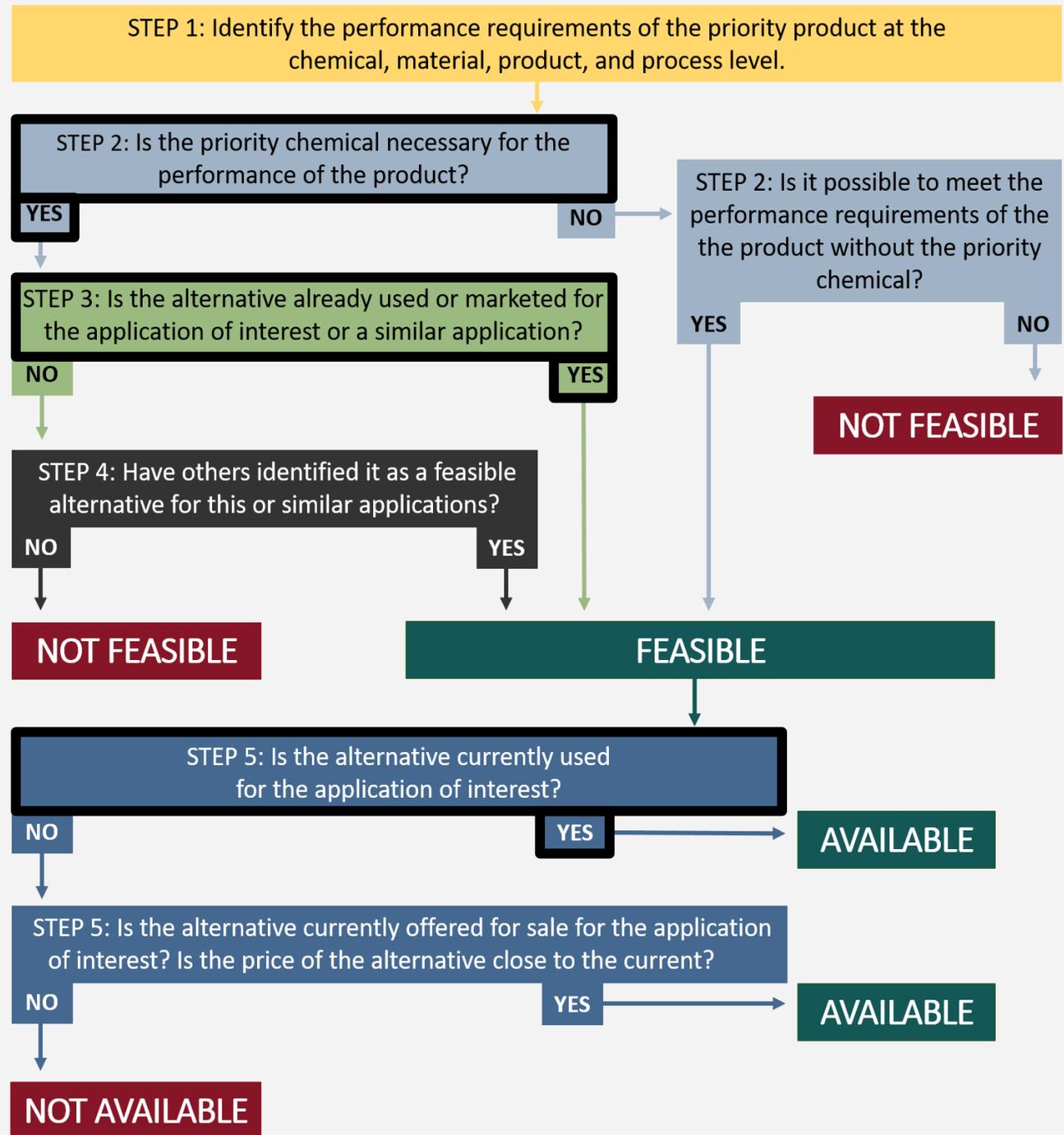
- Chemicals used to function like priority chemicals cannot have:
  - Moderate concerns for carcinogenicity, mutagenicity, reproductive or developmental toxicity.
  - Moderate or higher toxicity in other ways and be highly persistent or bioaccumulative.
  - High persistence and high bioaccumulation.
- For a full description—see the working draft criteria.

# Feasible and available

- RCW 70A.350 requires that Ecology determine that safer alternatives are “feasible and available” before restricting the use of a priority chemical.
- Not defined in the statute.
- IC2 Alternatives Assessment Guide (2017)
  - Modules to assess potential alternatives.
  - Performance module—technical feasibility.
  - Cost and availability module—price competitive and available in sufficient quantity.



# Process for identifying feasible and available alternatives





## Section 2. Personal care and beauty products

## Phthalates in personal care and beauty products (fragrances)

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- In 2019, Legislature listed phthalates as a priority chemical class.
- Identified fragrances in personal care and beauty products as a significant source or use of phthalates.
  - Phthalates are used as solvents and fixatives in fragrances.
- Listed them as a priority product our 2020 report.
- We identified safer chemical alternatives that are feasible and available in fragrances used in priority products.
- Analysis currently supports a restriction on use of phthalates in personal care and beauty products consistent with RCW 70A.350.
- We welcome your input!



# Personal care and beauty products are a significant source of exposure to phthalates

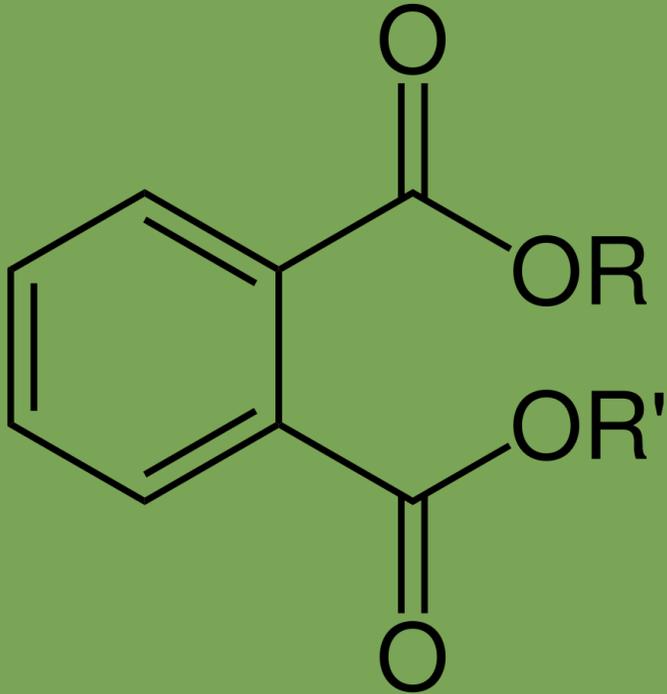
- Fragrances contribute to phthalate exposure in sensitive populations and the environment.
- Phthalates in fragrances can be:
  - Inhaled.
  - Absorbed dermally.
  - Ingested.
  - Transferred to house dust.
- Diethyl phthalate (DEP) is the most commonly detected phthalate in fragrances.



## Implications for environmental justice

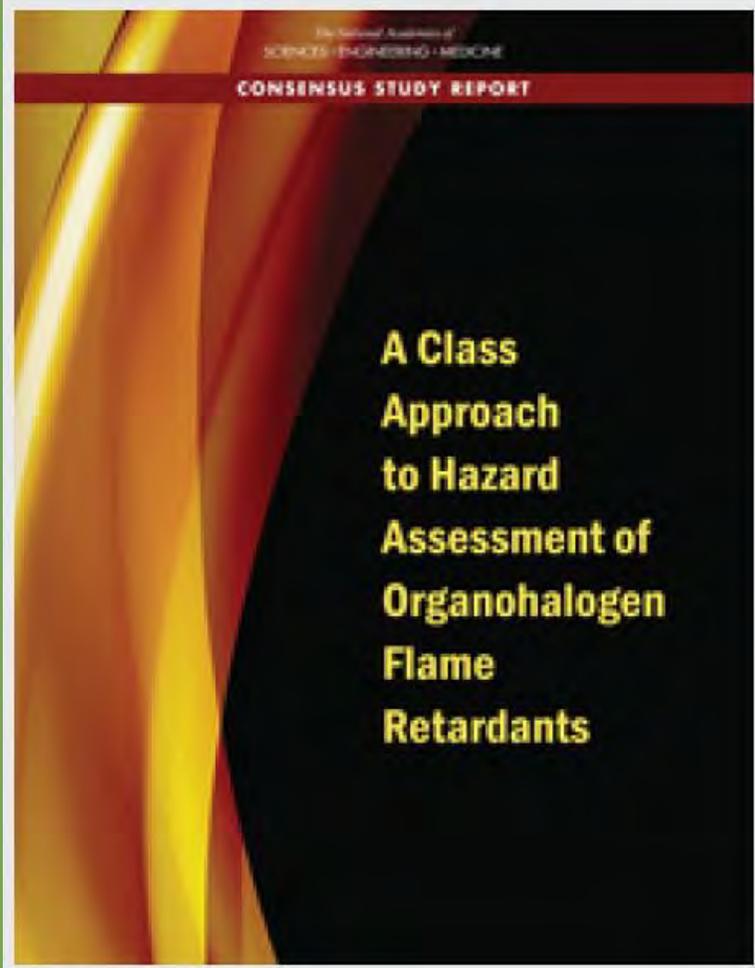
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- 2018 analysis of black haircare products found DEP in 14 out of 18 products tested.
  - Helm et al. 2018
- Community-led intervention reduced DEP exposure by 24% when Latina girls switched to “phthalate-free” cosmetics.
  - Harley et al. 2016
- Washington’s Low Income Survey and Testing Project found the DEP metabolite was higher in low-income women of childbearing age and teenagers than the general Washington population.



## The priority chemical class

- Phthalates are defined in the law as “synthetic esters of phthalic acid.”
- National Library of Medicine defines phthalic acid as a “**benzenedicarboxylic acid consisting of two carboxy groups at ortho positions.**”
- Thus, the definition of this priority chemical class can be clarified to “ortho-phthalates.”



## How can we assess classes of chemicals?

1. If there are all data rich chemicals → Assess the class based on data rich chemicals.
2. If there are all data poor chemicals → Unlikely to be a priority chemical class.
3. If there are data rich and data poor chemicals → Assess the class based on data rich chemicals.
4. If there is variable or discordant hazard data → Three options.
  1. Make a conservative decision and use the minimum criteria.
  2. Classify based on the chemicals potentially found in the products.
  3. Identify chemicals that meet the within-class criteria for safer and exclude those.



## Identifying data rich chemicals

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We identified data rich chemicals by looking for existing hazard assessments:

- GreenScreens®—conducted by a licensed profiler, publicly available or third-party reviewed.
- List Translator—review of Authoritative Lists.
- Other hazard assessment methods are possible, but would need to be:
  - Compatible with our criteria for safer and scoring methodology.
  - Publicly available or third-party reviewed.



## Identified data rich phthalates

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We identified 16 data rich phthalates:

- Nine phthalates had publicly available or third-party verified GreenScreen® assessments.
- Seven phthalates were found on authoritative lists that are indicative of hazards that do not meet our minimum criteria for safer.



## Hazards of data phthalates

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- Endocrine disruption
- Reproductive toxicity
- Developmental toxicity
- Carcinogenicity
- Aquatic toxicity



## Chemicals of High Concern to Children

- Diethyl phthalate (DEP)
- Diisobutyl phthalate (DIBP)
- Di-n-butyl phthalate (DBP)\*
- Di-n-hexyl phthalate (DnHP)
- Butyl benzyl phthalate (BBP)\*
- Di-2-ethylhexyl phthalate (DEHP)\*
- Di-(2-methoxyethyl) phthalate (DMEP)
- Di-n-octyl phthalate (DNOP)\*
- Di-pentyl phthalate (DPP)
- Diisodecyl phthalate (DIDP)\*
- Diisononyl phthalate (DINP)\*

\* = restriction on use in children's products at concentrations greater than 1,000 ppm individual or combined

# GreenScreen® Benchmark-1 phthalates that do not meet our minimum criteria for safer

| CAS#       | Chemical name                      | Endpoints with high or very high scores   | Presence on Authoritative Lists  |
|------------|------------------------------------|---|--|
| 84-75-3    | Di-n-hexyl phthalate<br>DnHP       | Carcinogenicity, reproductive toxicity, developmental toxicity, endocrine disruption and chronic aquatic toxicity | Developmental/reproductive toxicity: Cal EPA Prop 65, EU GHS H360FD  |
| 84-61-7    | Dicyclohexyl phthalate<br>DCHP     | Developmental toxicity, reproductive toxicity, endocrine disruption   | Developmental/reproductive toxicity: GHS – EU (H360D)<br>Endocrine activity: EU – SVHC Candidate List  |
| 84-75-3    | Dihexyl phthalate<br>DHP           | Carcinogenicity, developmental toxicity, reproductive toxicity, endocrine disruption, chronic aquatic toxicity    | Developmental/reproductive toxicity: Cal EPA Prop 65, US – NIH Repro. & Develop., GHS – EU (H360FD)  |
| 117-81-7   | Di(2-ethylhexyl) phthalate<br>DEHP | Carcinogenicity, developmental toxicity, reproductive toxicity, endocrine disruption                              | Carcinogenicity: Cal EPA Prop 65, IARC (2B), US NIH – Report on Carc., US EPA – IRIS Carc.<br>Developmental/reproductive toxicity: Cal EPA Prop 65, US NIH – Repro. & Develop., EU – GHS (H360FD)<br>Endocrine activity: EU – SVHC Candidate List, EU – SVHC Prioritisation List |
| 28553-12-0 | Diisononyl phthalate<br>DINP       | Carcinogenicity, developmental toxicity, reproductive toxicity, endocrine disruption                              | Carcinogenicity: Cal EPA Prop 65   |
| 26761-40-0 | Diisodecyl phthalate<br>DIDP       | Developmental toxicity  | Developmental/reproductive toxicity: Cal EPA Prop 65, US NIH – Repro. & Develop.   |

## GreenScreen® Benchmark-2 phthalates that meet our minimum criteria for safer

- Diethyl phthalate and dimethyl phthalate meet our minimum criteria for safer.
- Diethyl phthalate is moderate for reproductive toxicity, developmental toxicity, endocrine disruption, and aquatic toxicity.
  - Endpoints associated with phthalates as a class.

| CAS#       | Common name                          | Endpoints of concern  |
|------------|--------------------------------------|---|
| 131-11-3   | Dimethyl phthalate                   | Unknown (TCO positive List)   |
| 84-66-2    | Diethyl phthalate                    | Moderate for reproductive toxicity, developmental toxicity, endocrine disruption and aquatic toxicity |
| 53306-54-0 | Bis(2-propylheptyl) phthalate (DPHP) | Unknown (TCO positive list)   |

# Additional phthalates on authoritative lists

| CAS#       | Phthalate              | Endpoints of concern and associated authoritative lists  |
|------------|------------------------|--|
| 84-74-2    | Di-n-butyl phthalate   | Developmental/reproductive toxicity:<br>Cal EPA Prop 65, US NIH Reproductive and Developmental monographs<br>Endocrine disruption: EU SVHC List<br>Aquatic toxicity: EU GHS H400 |
| 84-69-5    | Diisobutyl phthalate   | Developmental/reproductive toxicity: EU GHS H360Df<br>Endocrine disruption: EU SVHC Authorisation list   |
| 131-18-0   | Di-n-pentyl phthalate  | Developmental/reproductive toxicity: EU GHS 360Df<br>Aquatic toxicity: EU GHS H400   |
| 85-68-7    | Butyl benzyl phthalate | Developmental/reproductive toxicity: Cal EPA Prop 65<br>Endocrine activity: EU SVHC<br>Aquatic toxicity: EU GHS H400   |
| 71850-09-4 | Diisohexyl phthalate   | Developmental/reproductive toxicity: EU GHS H360FD, EU SVHC list   |
| 71888-89-6 | Diisoheptyl phthalate  | Developmental/reproductive toxicity: EU GHS H360D, EU Annex VI CMRs Category 1B  |
| 27554-26-3 | Diisooctyl phthalate   | Developmental/reproductive toxicity: EU GHS H360FD   |

All other data rich phthalates

DEP, DMP, and DPHP

**Hazardous chemicals**

**Minimum criteria**

**Additional criteria**

**Optimal chemicals**

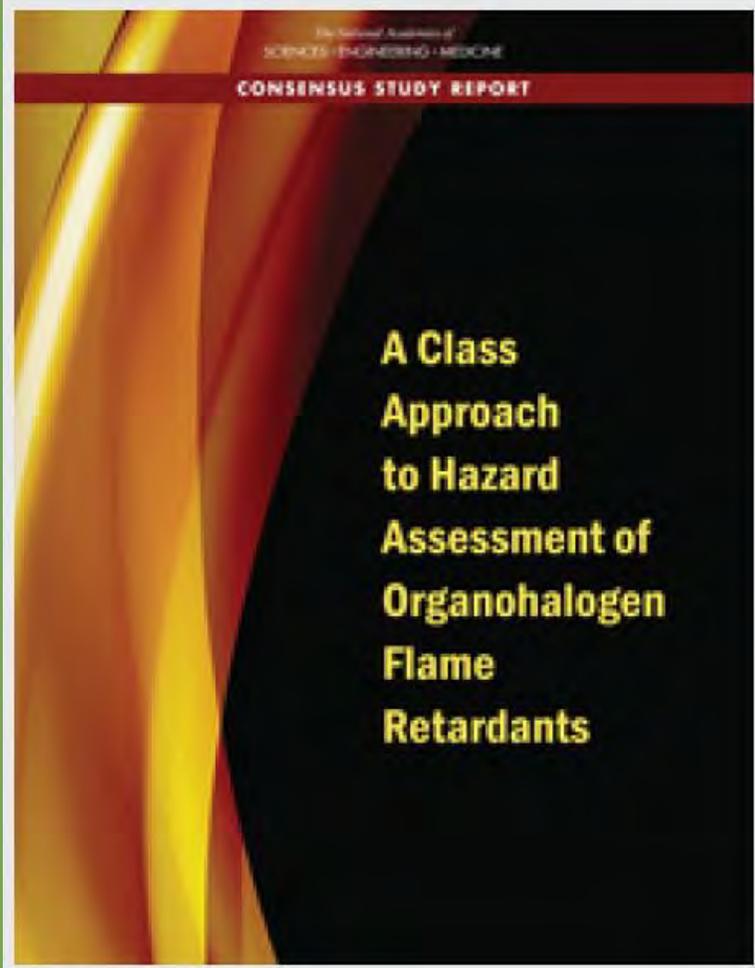
GreenScreen®  
BM-1  
Authoritative lists

GreenScreen®  
BM-2

GreenScreen®  
BM-2\*  
BM-3\*

*\*not all BM-2 meet additional criteria*

Criteria for safer is a spectrum



## How can we assess classes of chemicals?

1. If there are all data rich chemicals → Assess the class based on data rich chemicals.
2. If there are all data poor chemicals → Unlikely to be a priority chemical class.
3. If there are data rich and data poor chemicals → Assess the class based on data rich chemicals.
4. If there is variable or discordant hazard data → Three options.
  1. Make a conservative decision and use the minimum criteria.
  2. **Classify based on the chemicals potentially found in the products.**
  3. Identify chemicals that meet the within-class criteria for safer and exclude those.

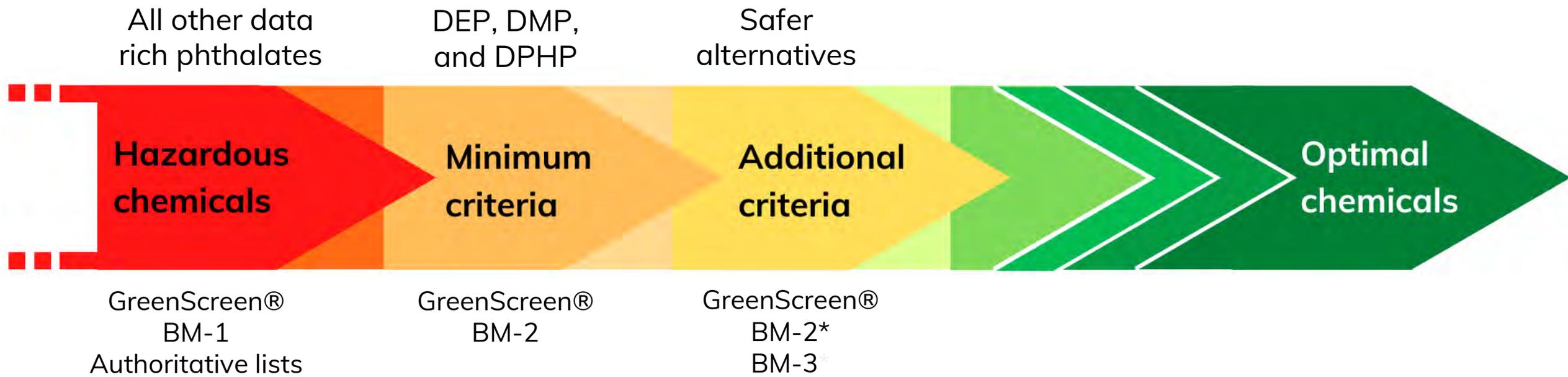
# Diethyl phthalate in personal care and beauty products

**Diethyl phthalate** (CASRN: 84-66-2, ToxServices, 2021)

- Most commonly detected at the highest concentrations of phthalates (priority product report to the Legislature 2020).
- Scores moderate for reproductive toxicity, developmental toxicity, endocrine activity, and aquatic toxicity.
  - Developmental toxicity occurred at doses above guidance values designated by SCIL Master Criteria.
  - Moderate reproductive toxicity does not meet our additional criteria for safer.

|        |              |                 |               |           |                |                   |       |               |            |                  |             |                 |
|--------|--------------|-----------------|---------------|-----------|----------------|-------------------|-------|---------------|------------|------------------|-------------|-----------------|
| Cancer | Mutagenicity | Repro. Toxicity | Dev. Toxicity | Endocrine | Acute Toxicity | Systemic Toxicity | Neuro | Sensitization | Irritation | Aquatic Toxicity | Persistence | Bioaccumulation |
| L      | L            | M               | M             | M         | L              | L                 | DG    | L             | H          | M                | vL          | vL              |

- vL = very low
- L = low
- M = moderate
- H = high
- DG = data gap



*\*not all BM-2 meet additional criteria*

Criteria for safer is a spectrum



## EPA SCIL

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Chemicals evaluated against the Safer Chemical Ingredients List (SCIL) Master Criteria meet our minimum and additional criteria for safer:

- Functional criteria are modified from the SCIL Mater Criteria to identify “best in class” alternatives.
- Sometimes functional criteria meet our additional criteria for safer.
  - Skin conditioning agents passes our additional criteria.
  - Fragrances criteria allows for data gaps that could be filled by other sources.

# ChemFORWARD

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- Non-profit that developed a method for assessing chemicals using the Cradle to Cradle Certified™ scoring system.
- Chemicals are binned into bands—based on hazard endpoints and physical/chemical properties.
  - Evaluates:
    - All intentionally added chemicals, at any concentration.
    - Residuals, impurities, or other unintentional contaminants at concentrations greater than 100 ppm.
    - Known environmental transformation products.
- ChemFORWARD and C2CC™ methodology is available online.
- Assessments conducted by board certified toxicologists, independently reviewed.
- Data requirements depend on the level of assessment, with bands A, B, and C meeting our criteria.

# Safer alternatives to phthalates in personal care and beauty products

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| Alternative         | Existing hazard evaluations  | Safer Conclusion          |
|---------------------|--|---------------------------|
| Dipropylene glycol  | <ul style="list-style-type: none"><li>• ChemFORWARD Band A</li><li>• TSCA Low Priority Chemical</li><li>• Meets SCIL Master Criteria</li></ul> | Meets additional criteria |
| Isopropyl myristate | <ul style="list-style-type: none"><li>• ChemFORWARD Band C</li><li>• GreenScreen® Benchmark-2</li><li>• SCIL half-circle</li></ul>             | Meets additional criteria |
| Benzyl alcohol      | <ul style="list-style-type: none"><li>• ChemFORWARD Band C</li><li>• SCIL yellow triangle</li></ul>  | Meets minimum criteria    |

# Dipropylene glycol

| Alternative        | Existing hazard evaluations  | Safer conclusion          |
|--------------------|--|---------------------------|
| Dipropylene glycol | <ul style="list-style-type: none"> <li>ChemFORWARD Band A</li> <li>TSCA Low Priority Chemical</li> <li>Meets SCIL Master Criteria</li> </ul> | Meets additional criteria |

## Dipropylene glycol

|        |              |                 |               |                      |                |                   |               |               |            |                  |             |                 |
|--------|--------------|-----------------|---------------|----------------------|----------------|-------------------|---------------|---------------|------------|------------------|-------------|-----------------|
| Cancer | Mutagenicity | Repro. Toxicity | Dev. Toxicity | Endocrine Disruption | Acute Toxicity | Systemic Toxicity | Neurotoxicity | Sensitization | Irritation | Aquatic Toxicity | Persistence | Bioaccumulation |
| L      | L            | L               | L             | DG                   | L              | L                 | L             | L             | L          | L                | L           | L               |

- L = low
- DG = data gap

- No hazard flags.
- Endocrine disruption is a data gap—currently under evaluation using ToxCast.
- Worst-case—could score moderate for endocrine disruption.

# Isopropyl myristate

| Alternative         | Existing hazard evaluations  | Safer conclusion          |
|---------------------|--|---------------------------|
| Isopropyl myristate | <ul style="list-style-type: none"> <li>ChemFORWARD Band C</li> <li>GreenScreen® Benchmark-2</li> <li>SCIL half circle (solvent)</li> </ul> | Meets additional criteria |

## Isopropyl myristate

| Cancer | Mutagenicity | Repro. Toxicity | Dev. Toxicity | Endocrine | Acute Toxicity | Systemic Toxicity | Neurotoxicity | Sensitization | Irritation | Aquatic Toxicity | Persistence | Bioaccumulation |
|--------|--------------|-----------------|---------------|-----------|----------------|-------------------|---------------|---------------|------------|------------------|-------------|-----------------|
| L      | L            | L               | M             | DG        | L              | L                 | M             | L             | L          | L                | vL          | L               |

- vL = very low
- L = low
- M = moderate
- DG = data gap

- Moderate developmental toxicity does not meet our additional criteria.
- Reduced pup weight gain occurred at 6.25% maternal diet exposure (LOAEL 6,000 mg/kg).
- Exceeds the guidance values identified by SCIL.
- Data gap for endocrine disruption, however very low in vitro activity based on ToxCast.

# Benzyl alcohol

| Alternative    | Existing hazard evaluations  | Safer conclusion       |
|----------------|--|------------------------|
| Benzyl alcohol | <ul style="list-style-type: none"> <li>ChemFORWARD Band C</li> <li>SCIL yellow triangle</li> </ul> | Meets minimum criteria |

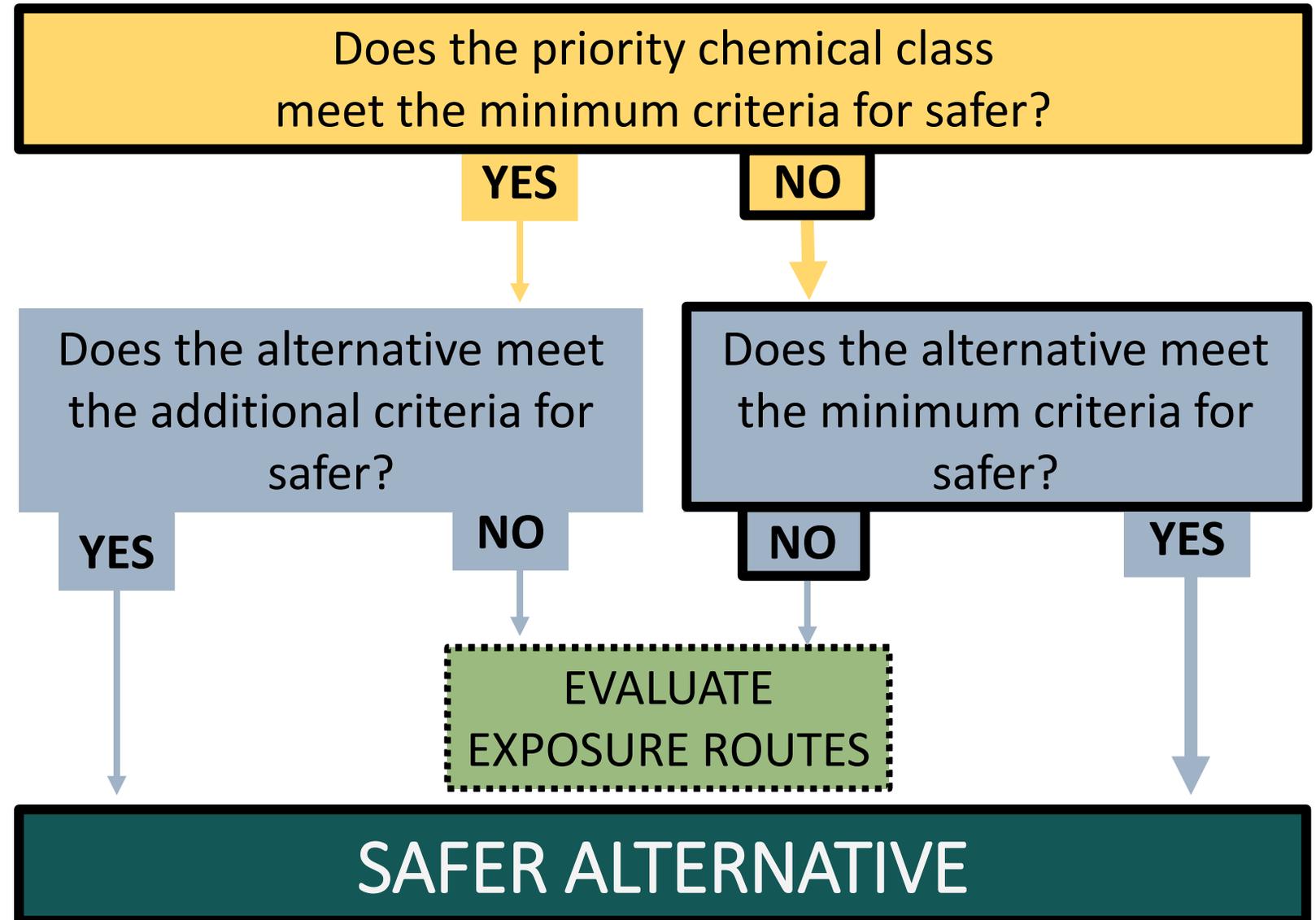
## Benzyl alcohol

| Cancer | Mutagenicity | Repro. Toxicity | Dev. Toxicity | Endocrine | Acute Toxicity | Systemic Toxicity | Neurotoxicity | Sensitization | Irritation | Aquatic Toxicity | Persistence | Bioaccumulation |
|--------|--------------|-----------------|---------------|-----------|----------------|-------------------|---------------|---------------|------------|------------------|-------------|-----------------|
| L      | L            | L               | L             | L         | L              | M                 | H             | M             | M          | L                | L           | L               |

- L = low
- M = moderate
- H = high

- ChemFORWARD assessment shows high neurotoxicity, which does not meet our additional criteria for safer.
- Evidence that it does not cause endocrine disruption.
- We need to evaluate special considerations in our analysis.

# Process for identifying safer alternatives



# Is benzyl alcohol safer?

- Endpoint of concern is **neurotoxicity**.
- Neurotoxicity scores high because of an association with gasping syndrome in preterm infants.
  - Benzyl alcohol was used as a preservative in the **intravenous solution**.
- Animal studies show low neurotoxicity via oral, dermal, and inhalation exposure routes.
- We expect oral, dermal, and inhalation exposure routes to be most relevant for personal care and beauty products.
- When we consider the relevant exposure routes and hazards, **we find benzyl alcohol to be safer than phthalates in personal care and beauty products.**

|            | Neurotoxicity |
|------------|---------------|
| Injection  | High          |
| Oral       | Low           |
| Dermal     | Low           |
| Inhalation | Low           |

# Other safer alternatives to phthalates in personal care and beauty products

| Alternative      | Existing hazard assessments   | Safer conclusion                        |
|------------------|---|---|
| Castor oil       | Meets SCIL solvent criteria. Confirmed the remaining endpoints met our criteria by reviewing the ECHA Registration Dossier.                               | Meets the additional criteria for safer |
| Grapeseed oil    | Meet SCIL Master Criteria (green circle).   | Meets the additional criteria for safer |
| Sweet almond oil | Meet SCIL Master Criteria (green circle).   | Meets the additional criteria for safer |
| Coconut oil      | Meet SCIL Processing Aids and Additives Criteria. Additional endpoints confirmed with a verified unredacted Scivera GHS+ assessment.                      | Meets the additional criteria for safer |
| Vanillin         | Meets SCIL Fragrance Criteria (green circle). Additional endpoints assessed with a verified unredacted Scivera GHS+ assessment.                           | Meets the additional criteria for safer |
| Ethyl vanillin   | Meets SCIL Fragrance Criteria (green half-circle). Confirmed the remaining endpoints met our criteria with a verified unredacted Scivera GHS+ assessment. | Meets the additional criteria for safer |



## Feasible and available: Dipropylene glycol

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- Marketed as being commonly used as a carrier for fragrances and deodorants.
  - Exhibits good cosolvency with water, oils and hydrocarbons
  - Colorless
  - Low volatility
  - No/Low-odor
- Marketed uses: Perfumes and colognes, skin care, deodorants, hair care, shaving products, bath and shower products, cosmetics.



## Feasible and available: Dipropylene glycol

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According to Environmental Working Group's Skin Deep® database, dipropylene glycol is used in products such as:

- Fragrance for men and women.
- Skin care and body wash products: Hand cream, body lotion, eye cream, etc.
- Deodorants.
- Hair care products: Conditioner, shampoo, styling mousse, detangler, etc.
- Cosmetics: Eye shadow, setting powder, etc.

## Feasible and available: Isopropyl myristate

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- Relevant uses—marketed for use as emollient, solvent
  - Colorless
  - No/Low-odor
- Recommended for:
  - Skin care
  - Sun care
  - Shower and bath
  - Cosmetics
  - Deodorants
- Example: Henry Rose Windows Down Eau De Parfum C2CC™ Material Health Certificate Silver
  - Function: Solvent





## Feasible and available: Benzyl alcohol

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- Marketed for use as a preservative, fragrance fixative, and solvent
  - Colorless
  - Mild odor (floral)
  - Low volatility
- Recommended for:
  - Skin care
  - Sun care
  - Shower and bath
  - Oral care
  - Cosmetics
  - Hair care
  - Perfumes and fragrances

## There are other ways to mix and match

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| Alternative      | Odor                         | Function                |
|------------------|------------------------------|-------------------------|
| Castor oil       | Odorless to very light scent | Carrier oil             |
| Grapeseed oil    | Odorless                     | Carrier oil             |
| Sweet almond oil | Mild nutty aroma             | Carrier oil             |
| Coconut oil      | Light coconut aroma          | Carrier oil             |
| Vanillin         | Sweet, vanilla               | Isolated aroma chemical |
| Ethyl vanillin   | Sweet, vanilla               | Isolated aroma chemical |



## In some cases, it is not necessary

Examples: Using carrier oils and essential oils

- Fragrance for men and women.
- Body lotion, body wash, soap, etc.
- Deodorants.
- Shampoo, conditioner, hair lotion, etc.



## Conclusion

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- Safer alternatives to phthalates in fragrances in personal care and beauty products are feasible and available.
- At this time, we did not find any evidence that the alternatives identified are not feasible for any specific types of personal care and beauty products.
- **Evidence supports a restriction on the use of phthalates in fragrances in personal care and beauty products.**

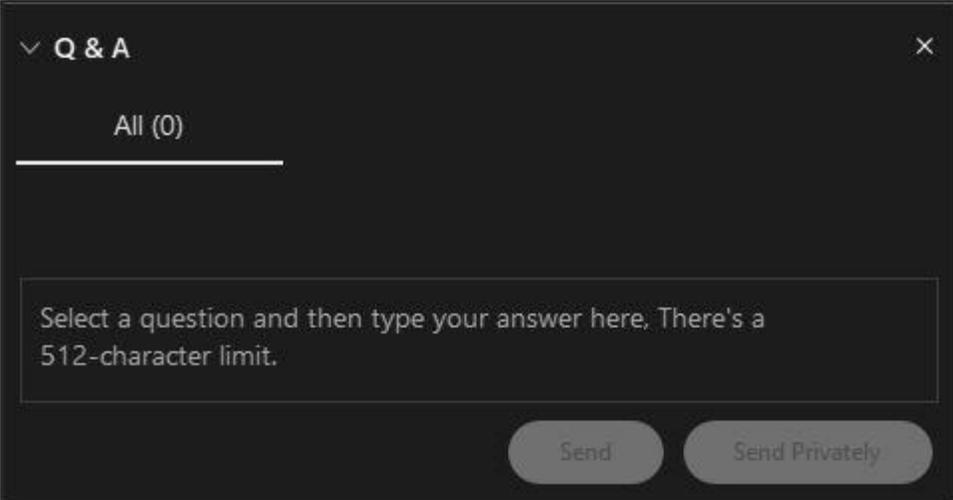


## Section 3. Personal care & beauty products discussion

# Questions? Input to share?

## Type in the Q & A box or raise your hand to unmute.

- Direct your question to everyone using the drop down arrow.
- If you need more than 512 characters, ask your question or give your input verbally.
- Raise your hand and we will unmute you to give your input.
  - If you're dialing in via phone, dial \*3 to raise your hand.



The screenshot shows a dark-themed interface for a Q & A session. At the top left, there is a dropdown arrow and the text "Q & A". At the top right, there is a close button (an "x" icon). Below this, the text "All (0)" is displayed above a horizontal line. A large text input area contains the instruction: "Select a question and then type your answer here, There's a 512-character limit." At the bottom right of the input area, there are two buttons: "Send" and "Send Privately".

# Personal care and beauty products

## Feedback category

## Feedback from stakeholders during the July 27 discussion

### Analysis process

- Will safer take a stance on high versus low molecular weight phthalates? This might be a better question for the Aug. 17 webinar.

### Potential regulation

- A 5-year timeline is out of line with what is needed to implement regulations. Industry is well-aware of the issues regarding phthalates (for nearly 20 years) in terms of personal care products. I believe many are already working to reformulate. If they want that variance or a temporary extension, which I think that would be, they would need to provide documentation about why they need that.
- Estimate that two years are required for toxics in packaging reformulation.

### Other feedback

- There are parts of the world where water supplies are contaminated with phthalates, and botanical ingredients sourced from those regions may have trace levels of certain materials. Would trace levels like this potentially fall under scope of this restriction? Or alternatively, would this be a complete prohibition or a concentration restriction?
- Do less expensive products the poor would use contain more of the nasties because they are less expensive to formulate?
- Composition of fragrances is confidential business information to formulating companies and is a very specialized art. You will need to have confidential conversations to get answers to the questions you raised today.

## Where are we at on the other products?

| Priority product                 | Priority chemical class | Status   | Webinar date                           |
|----------------------------------|-------------------------|--|--|
| Vinyl flooring                   | Phthalates              | Ordered data from manufacturers, evaluating alternative plasticizers   | August 17, 9:30 a.m. PST               |
| Carpets and rugs                 | PFAS                    | Evaluating C2CC™ products and non-chemical alternatives  | August 17, 12 p.m. PST                 |
| Furniture and furnishings        | PFAS                    | Looking for alternative ways to increase cleanability. Identified untreated fabric, inherently stain resistant fabric, wipeable fabric, and washable covers as potential alternatives. | Update during carpets and rugs webinar |
| Electric and electronic products | Flame retardants        | Conducting product testing study, evaluating alternatives listed on TCO's positive list (GreenScreen® BM-2 or higher)  | August 31, 9:30 a.m. PST               |
| Printing inks                    | PCBs                    | Conducting product testing study, working on identifying inks with lower PCB concentrations  | August 31, 12 p.m. PST                 |

**Have ideas or input on any of these products? Please reach out! We'd love to hear from you!**



## Get involved with our Phase 3 process

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- Share your input on the working draft criteria for safer, feasible, and available.
- Don't miss product-specific webinars this summer.
- Invite us to present to your group.
- Reach out to us to set up a meeting with our team.



## Stakeholder involvement next steps

- Make sure you are on our email list!
- Product-specific webinars continuing this summer.
  - Final two webinars just announced!
- Formal public comment period on draft regulatory actions report (Fall 2021 – Winter 2022).

# Thank you for joining us!

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SaferProductsWA@ecy.wa.gov



[ecology.wa.gov/Safer-Products-WA](http://ecology.wa.gov/Safer-Products-WA)



[bit.ly/SaferProductsWA](http://bit.ly/SaferProductsWA) (Find links to everything here!)



Chapter 70A.350 RCW (formerly 70.365)



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End of presentation.

# Safer Products for WA Implementation Process

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The implementation process for Safer Products for Washington involves **four major phases**.

**1. Phase 1.** May 8, 2019: What chemicals are we most concerned about?

- The first five priority chemical classes are PFAS, PCBs, phthalates, phenols, and flame retardants.

**2. Phase 2.** June 1, 2020: What consumer products contain these chemicals?

- This phase identifies priority consumer products that are significant sources of exposure to people and the environment.

**3. Phase 3.** June 1, 2022: Do we need to regulate when these chemicals are used?

- This phase determines regulatory actions—whether to require notice, restrict/prohibit, or take no action.

**4. Phase 4.** June 1, 2023: What rules do we need to keep people and the environment safe?

- This phase includes restrictions on the use of chemicals in products or reporting requirements. Restrictions take effect one year after rule adoption.

After these four phases are completed, the **5-year cycle repeats**, and we return to Phase 1 to identify a new set of priority chemical classes.

# Process for identifying feasible and available alternatives

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- **Step 1:** Identify the performance requirements of the priority product at the chemical, material, product, and process level.
- **Step 2:** Is the priority chemical necessary for the performance of the product?
  - If yes, move to Step 3.
  - If no, is it possible to meet the performance requirements of the product without the priority chemical?
    - If yes, the alternative is feasible, and we move to Step 5 to assess availability.
    - If no, the alternative is not feasible.
- **Step 3:** Is the alternative already used or marketed for the application of interest or a similar application?
  - If yes, the alternative is feasible, and we move to Step 5 to assess availability.
  - If no, move to Step 4.
- (Continued on next slide.)

# Continued: Identifying feasible and available alternatives

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- **Step 4:** Have others identified it as a favorable alternative for this or similar applications?
  - If yes, the alternative is feasible, and we move to Step 5 to assess availability.
  - If no, the alternative is not feasible.
- **Step 5:** Is the alternative currently used for the application of interest?
  - If yes, the alternative is available.
  - If no, we move to the second part of Step 5.
- **Step 5 (second part):** Is the alternative currently offered for sale for the application of interest? Is the price of the alternative close to the current?
  - If yes to both, the alternative is available.
  - If no (to one or both), the alternative is not available.