**Products & Alternatives Prioritization: Seeking safer alternatives to toxic substances in food packaging**

Issue Summary

In 2018, the Washington State Legislature passed a law ([70.95G](https://app.leg.wa.gov/RCW/default.aspx?cite=70.95G)) prohibiting the manufacture, sale and distribution of these types of food packaging, directing the Washington State Department of Ecology to study alternative products and report its findings to the Legislature in 2020.

Product Category & Alternatives Prioritization

Ecology’s selection of the product categories includes wraps and liners, bags, dinnerware, and takeout containers. This allows Ecology to leverage information and data on the current uses across multiple product categories to seek opportunities to replace several toxic products with alternatives. Choosing products with a material overlap will help to maximize the positive impact on businesses that use these products.

Ecology is conducting research and review of the current market availability of the many types of materials used in food packaging both with and without PFAS. As a result, Ecology is prioritizing the products in the alternatives assessment based on product volume and availability of alternatives to focus on the most viable options (considering the agency’s timeline and budget).

Ecology is reviewing product categories and materials used based on the following prioritization principles:

* **Market share:** Ecology will prioritize product categories that occupy larger percentages of the food packaging market.
* **Available alternatives:** Ecology will prioritize product categories where we know PFAS-free food packaging products are available and used.
* **Safer alternatives:** Ecology will prioritize product categories where known alternatives are found on the U.S. Environmental Protection Agency’s Safer Chemical Ingredients List (SCIL) or are comprised of materials known to be of low concern (e.g. paper, aluminum).
* **State efficiency and environmental performance:** Ecology will identify product categories based on recyclability and compostability, as outlined in Executive Order 20-10 issued by Governor Jay Inslee.

Ecology is using these principles to help prioritize and narrow the initial selection of products and alternatives for the assessment.

Table 1 contains the alternative materials in the product categories Ecology identified. Table 2 contains alternative chemicals in these products and an initial assessment of their level of concern. The Chemical Abstract Service (CAS) numbers are provided for the specific chemicals that are on EPA’s SCIL.

**Table 1. Priority Alternative Materials and Products by Category**

|  |  |  |
| --- | --- | --- |
| **Wraps/Liners** | **Dinnerware** | **Takeout Containers** |
| Wax coated | Polylactide (PLA) foam | Polylactide coated |
| Silicone coated or infused | Clay coated | Polyvinyl alcohol coated |
| Uncoated paper | Polyethylene coated | Polyethylene coated |
| Polyvinyl alcohol coated | Polyethylene terephthalate coated | Clay coated |
|  | Polyvinyl alcohol coated | Polylactide plastic |
|  | Polylactide coated |  |

**Table 2. Alternative Chemicals for Hazard Evaluation**

|  |  |  |
| --- | --- | --- |
| **Low Concern**  | **EPA SCIL (green circle)** | **Hazard Evaluation Candidates** |
| Uncoated paper | Petroleum wax1  | Silicone coatings |
| Aluminum  | Bio-based wax2  | Polyvinyl alcohol coatings  |
|  | Kaolin clay (CAS 1332-58-7) | Polylactide (foam, plastic, coating) |
|  |  | Polyethylene coatings |
|  |  | Polyethylene terephthalate coatings |
|  |  | Additives, contaminants, and degradation products |

1. Related [EPA SCIL](https://www.epa.gov/saferchoice/safer-ingredients) listings includes Paraffin waxes, petroleum, clay-treated (CAS 64742-43-4) and Paraffin waxes, petroleum, hydrotreated (CAS 64742-51-4)
2. Related EPA SCIL listings may include soybean oil and soybean oil derivatives that could be hydrogenated to produce waxy substances: soybean oil (CAS 8001-22-7), soybean oil fatty acids (CAS 68308-53-2), soybean oil, methyl esters (CAS 67784-80-9), and soybean oil, sulfated, sodium salt (CAS 61790-16-7)

Functional Substitution: Addressing Reusables as Potential Alternatives

Reusable travel and to-go food containers are gaining interest as a viable available alternative. Certain market sectors and product lines have alternative reusable options as opposed to single-use products (Wei et al. 2003; Clean Water Action). Examples include food trays and dinnerware in institutional, lodging and hospitality markets.

Information Sources

Ecology will continue reviewing the information sources below to assist with the prioritization effort:

* **Freedonia Group Market Research Analysis** - Ecology is using The Freedonia Group (2017) industry study on foodservice single-use products to identify the major producers and suppliers of PFAS alternative products. Companies are categorized by market sectors and the product line they offer in each sector. The alternative material used in each product line is also identified.
* **Manufacturers and Users -** Ecology is collaborating with stakeholders who voluntarily provide information on their products to assist in the development of the alternatives assessment. Stakeholders, including chemical producers, product manufactures, and end users have provided alternative products that have been independently verified as likely to be PFAS-free based on the level of fluorine content.
* **U.S. EPA Safer Chemical Ingredients List -** Ecology is leveraging the use of the SCIL to identify chemicals that EPA has already evaluated and determined are safer for use in products.
* **Databases on PFAS-free products -** Ecology is relying upon information found in existing databases, including those from The [Center for Environmental Health (CEH)](https://www.ceh.org/ceh-report-avoiding-hidden-hazards-purchasers-guide-safer-foodware/) and [Collaborative Network For Cancer Free Economy](https://sustainablepackaging.org/wp-content/uploads/2018/07/Purchasing-Safer-Compostable-Food-Service-Ware.pdf). Although meant to serve as a resource for purchasers, these databases serve as excellent sources of information and a good starting point to identify and prioritize alternatives for this assessment.
* **Standards Setting and Certifying Programs –** Ecology will consider existing and emerging efforts to establish standards for materials, products and services that meet high technical quality and market relevancy. The use of standards and certification programs help promote the use of transparency in the market through a rigorous process to address both U.S. and global standards.
* **Literature search -** Ecology will continue to review scientific literature to look for new studies that add to our understanding of chemicals used in food packaging.

**References**

Clean Water Action. Rethink Disposable. <http://www.rethinkdisposable.org/>

EPA Safer Chemical Ingredients List (SCIL). <https://www.epa.gov/saferchoice/safer-ingredients>

The Freedonia Group. 2017. Industry Study #3543 Foodservice Single-Use Products in the US. December 2017. MarketResearch.com, Inc.

Wie, S et al. A Decision Tree for Selecting the Most Cost-Effective Waste Disposal Strategy in Foodservice Operations. J. Am Diet Assoc. 2003; 103: 475-482.