



Decreasing Use of PFAS in Food Packaging in Washington State

Report to the Legislature pursuant to RCW 70A.222.070

Introduction

Revised Code of Washington [70A.222.070](#)¹ directs the Washington Department of Ecology to assess alternatives to intentionally added PFAS (per- and polyfluoroalkyl substances) used in paper and other plant fiber-based food packaging items. This document summarizes Ecology's current understanding of PFAS use in food packaging in Washington.

Legislation

In 2018, the Washington State Legislature adopted Substitute House Bill 2658, subsequently codified at RCW 70A.222.070. This legislation states that, beginning January 1, 2022, "no person may manufacture, knowingly sell, offer for sale, distribute for sale, or distribute for use in this state food packaging² to which PFAS chemicals have been intentionally added in any amount."

For the prohibition to take effect, Ecology must:

1. Conduct a peer-reviewed alternatives assessment that follows the guidelines issued by the Interstate Chemicals Clearinghouse. The assessment must evaluate chemical hazards, exposure, performance, cost, and availability.
2. Publish findings in the Washington State Register on whether safer alternatives are available for each assessed food packaging application.
3. Submit a report with its findings and feedback from a peer review of the alternatives assessment to the appropriate committees of the Legislature.

If safer alternatives are not identified for all categories of food packaging, Ecology must review and report on alternatives annually as described in RCW 70A.222.070.

Status of PFAS in food packaging in Washington

Current restrictions

Our 2021 and 2022 food packaging assessments looked for safer alternatives for paper and other plant-based food packaging intended for short-term food storage or holding freshly

¹ <https://app.leg.wa.gov/rcw/default.aspx?cite=70A.222.070>

² RCW 70A.222.010(1) defines "food package" as "a package or packaging component that is intended for direct food contact and is comprised, in substantial part, of paper, paperboard, or other materials originally derived from plant fibers."

prepared food. That work resulted in restrictions on PFAS in the following types of paper or plant fiber-based food packing items being restricted starting February 1, 2023:

- Wraps and liners
- Plates
- Food boats
- Pizza boxes

Safer alternatives were also found for the following items, which were restricted in Washington starting May 1, 2024:

- Bags and sleeves
- Bowls
- Flat serveware (such as plates and trays)
- Open-top containers (such as french fry containers and food cups)
- Closed containers (such as clamshell containers)

In our last review, we did not find safer alternatives for other food packaging items, such as butter wrappers, popcorn bags, and pet food bags.

Availability of PFAS for food packaging has decreased

When we first reported on alternatives to PFAS in food packaging, 19 specific PFAS chemicals were approved by the U.S. Food and Drug Administration for use in paper and other plant-based food packaging. In 2020, the FDA announced that chemical manufacturers would voluntarily phase out 15 of these PFAS.

This phase-out began in 2021. In February 2024, the FDA announced that manufacturers that committed to a voluntary phase-out were no longer selling PFAS in the food packaging market. Furthermore, the remaining chemical manufacturers that still have approval from the FDA to make PFAS for paper-based food packaging have also stopped selling these chemicals in the United States.

Additionally, as of 2023 most paper manufacturers in the United States have either stopped using or are planning to stop using PFAS in food packaging paper. In 2021, the Environmental Protection Agency spoke with several major U.S. paper mills as part of a multi-industry survey of PFAS use. Even mills that reported using PFAS in food packaging paper were planning to switch to alternatives by 2024.

Conclusion

Our research indicates that food packaging manufacturers are already moving to PFAS-free alternatives in food packaging due to supply chain changes and recent PFAS restrictions enacted by Washington and other states. Manufacturers are no longer selling the allowed PFAS chemicals and paper producers have stopped or will soon stop using PFAS in their products. With recent changes in both the legality and supply of PFAS used in food packaging, as well as PFAS restrictions in Washington and other states, we believe that PFAS is already being phased out of paper food packaging and will largely be removed by 2025 in the United States.

Based on this change, we do not believe there are food packaging products containing PFAS that require further review under RCW 70A.222.070. Therefore, this is our final report under RCW 70A.222.070.

References

- CDC (Centers for Disease Control). (2020). [Potential health effects of PFAS chemicals](https://www.atsdr.cdc.gov/pfas/health-effects/index.html) | ATSDR. Retrieved from Agency for Toxic Substances and Disease Registry - Centers for Disease Control. <https://www.atsdr.cdc.gov/pfas/health-effects/index.html>
- Ecology (Washington State Department of Ecology). (2021). [Per- and Polyfluoroalkyl Substances in Food Packaging Alternatives Assessment](https://apps.ecology.wa.gov/publications/documents/2104004.pdf). <https://apps.ecology.wa.gov/publications/documents/2104004.pdf>
- Ecology (Washington State Department of Ecology). (2022). [Per- and Polyfluoroalkyl Substances in Food Packaging Second Alternatives Assessment Publication No. 22-04-007](https://apps.ecology.wa.gov/publications/documents/2204007.pdf). <https://apps.ecology.wa.gov/publications/documents/2204007.pdf>
- EPA (United States Environmental Protection Agency). (2021). [Multi-Industry Per- and Polyfluoroalkyl Substances \(PFAS\) Study – 2021 Preliminary Report](https://www.epa.gov/system/files/documents/2021-09/multi-industry-pfas-study_preliminary-2021-report_508_2021.09.08.pdf). https://www.epa.gov/system/files/documents/2021-09/multi-industry-pfas-study_preliminary-2021-report_508_2021.09.08.pdf
- FDA (Food and Drug Administration). (2020). [FDA announces the voluntary phase-out by industry of certain PFAS used in food packaging](https://www.fda.gov/food/cfsan-constituent-updates/fda-announces-voluntary-phase-out-industry-certain-pfas-used-food-packaging) | FDA. <https://www.fda.gov/food/cfsan-constituent-updates/fda-announces-voluntary-phase-out-industry-certain-pfas-used-food-packaging>
- FDA (Food and Drug Administration). (2024). [Market phase-out of grease-proofing substances containing PFAS](https://www.fda.gov/food/process-contaminants-food/market-phase-out-grease-proofing-substances-containing-pfas) | FDA. <https://www.fda.gov/food/process-contaminants-food/market-phase-out-grease-proofing-substances-containing-pfas>
- Gebbink, W. A., Glynn, A., Darnerud, P. O., & Berger, U. (2015). [Perfluoroalkyl acids and their precursors in Swedish food: The relative importance of direct and indirect dietary exposure](https://doi.org/10.1016/J.ENVPOL.2014.12.022). *Environmental Pollution*, 198, 108 – 115. <https://doi.org/10.1016/J.ENVPOL.2014.12.022>
- Greenwood, M. (2023, March 14). [Popular Kerrygold butter varieties return to NY store shelves](https://www.democratandchronicle.com/story/news/2023/03/14/kerrygold-butter-returns-to-ny-store-shelves/70006936007/). *Democrat & Chronicle*. <https://www.democratandchronicle.com/story/news/2023/03/14/kerrygold-butter-returns-to-ny-store-shelves/70006936007/>
- PERFOOD. (2013). [Final Report Summary - PERFOOD \(PERFluorinated Organics in Our Diet\)](https://cordis.europa.eu/project/id/227525/reporting). <https://cordis.europa.eu/project/id/227525/reporting>
- Sapozhnikova, Y., Taylor, R.B., Bedi, M., Ng, C. (2023). [Assessing per- and polyfluoroalkyl substances in globally sourced food packaging](https://doi.org/10.1016/j.chemosphere.2023.139381). *Chemosphere*, 1-9. <https://doi.org/10.1016/j.chemosphere.2023.139381>
- Schaider, L., Balan, S., Blum, A., Andrews, D., Strynar, M., Dickinson, M., Lunderberg, D., Lang, J., & Peaslee, G. (2017). [Fluorinated Compounds in U.S. Fast Food Packaging](https://doi.org/10.1016/j.chemosphere.2017.04.041). <https://doi.org/10.1016/j.chemosphere.2017.04.041>

Environmental Science and Technology Letters, 4, 105 – 111.

<https://pubs.acs.org/doi/10.1021/acs.estlett.6b00435>

Siao, P., Tseng, S. H., & Chen, C. Y. (2022). [Determination of perfluoroalkyl substances in food packaging in Taiwan using ultrasonic extraction and ultra-performance liquid chromatography/tandem mass spectrometry](#). *Journal of Food and Drug Analysis*, 30(1), 11. <https://doi.org/10.38212/2224-6614.3397>

Timshina, A., Aristizabal-Henao, J., Da Silva, B., & Bowden, J. (2021). [The last straw: Characterization of per- and polyfluoroalkyl substances in commercially-available plant-based drinking straws](#). *Chemosphere*, 277, 130 – 238. <https://doi.org/10.1016/J.CHEMOSPHERE.2021.130238>

Yuan, G., Peng, H., Huang, C., & Hu, J. (2016). [Ubiquitous Occurrence of Fluorotelomer Alcohols in Eco-Friendly Paper-Made Food-Contact Materials and Their Implication for Human Exposure](#). *Environmental Science and Technology*, 50(2), 942–950. <https://doi.org/10.1021/acs.est.5b03806>

Zabaleta, I., Blanco-Zubiaguirre, L., Baharli, E. N., Olivares, M., Prieto, A., Zuloaga, O., & Elizalde, M. P. (2020). [Occurrence of per- and polyfluorinated compounds in paper and board packaging materials and migration to food simulants and foodstuffs](#). *Food Chemistry*, 321, 126746. <https://doi.org/10.1016/J.FOODCHEM.2020.126746>

Publication information

This report is available on the Department of Ecology's website at

<https://apps.ecology.wa.gov/publications/SummaryPages/2404052.html>

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³ www.ecology.wa.gov/contact

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