



January 22, 2024

Washington Department of Ecology
Hazardous Waste and Toxics Reduction
Olympia, Washington

RE: Safer Products for Washington PFAS Regulatory Determinations Report (Cycle 1.5)

Submitted electronically via the public comment form available at
<https://hwtr.ecology.commentinput.com/?id=UguCSsFZD>

On behalf of the American Chemistry Council's Performance Fluoropolymer Partnership,¹ thank you for the opportunity to comment on the Washington Department of Ecology's (hereafter "Ecology") report *Draft Regulatory Determinations Report to the Legislature: Safer Products for Washington Cycle 1.5 Implementation Phase 3*.² The Partnership's members are some of the world's leading manufacturers, processors, and users of fluoropolymers, including fluoroelastomers, and polymeric perfluoropolyethers. The Partnership's mission is to promote the responsible production, use, and management of fluoropolymers, while also advocating for a sound science- and risk-based approach to their regulation.

For the reasons given below, we request that Ecology exempt fluoropolymers and fluoropolymer-based products shown to meet the polymers of low concern criteria from further consideration. We recommend that Ecology focus on non-polymeric PFAS and telomeric side-chain fluorinated polymers that may be found in products under Ecology's jurisdiction.

We note that, in its PFAS Action Plan, Ecology said of fluoropolymers:

*Fluoropolymers have been found to have thermal, chemical, photochemical, hydrolytic, oxidative, and biological stability (Henry et al., 2018; Korzeniowski & Buck, 2019a). They are almost insoluble in water and not subject to long-range transport. With very high molecular weight (greater than 100,000 Da), fluoropolymers cannot cross the cell membrane. They are neither bioavailable nor bioaccumulative. Clinical studies of their use in medical devices has [sic] demonstrated lack of chronic toxicity or carcinogenicity and no reproductive, developmental, or endocrine toxicity.*³

Ecology has also acknowledged that fluoropolymers "are generally agreed to be inert and not bioavailable or bioaccumulative, suggesting minimal health impact."⁴

¹ <https://fluoropolymerpartnership.com/>

² <https://apps.ecology.wa.gov/publications/documents/2304062.pdf> (December 2023, Publication 23-04-062)

³ *Per- and Polyfluoroalkyl Substances Chemical Action Plan*. Hazardous Waste and Toxics Reduction Program Washington State Department of Ecology. Olympia, Washington. Revised September 2022, publication 21-04-04. Page 97. <https://apps.ecology.wa.gov/publications/documents/2104048.pdf>.

⁴ *Id.* at 223.

Indeed, fluoropolymers are large, stable molecules that have been demonstrated to meet criteria developed by governmental and intergovernmental regulators to identify “polymers of low concern” for potential impacts on humans and the environment.^{5,6} Both the Henry *et al.* (2018) and Korzeniowski *et al.* (2022) studies analyzed data on multiple fluoropolymers against international criteria for identifying polymers of low concern to human health and the environment. The fluoropolymers covered in the two papers taken together are:

- Fluoroplastics: PTFE, ETFE, FEP, PFA, PVDF homopolymer, PVDF copolymer, ECTFE copolymer, ECTFE terpolymer, PCTFE, FEVE, EFEP terpolymer, CPT terpolymer, THV terpolymer
- Fluoroelastomers: FEPM, FKM, FFKM
- Specialty Fluoroplastics: Amorphous, Ionomer

Korzeniowski *et al.* estimate that these substances are representative of approximately 96% of fluoropolymers in global commerce.

The criteria evaluate physical and chemical attributes that would not raise concerns about potential hazard and include examination of:

- Structure and elemental composition;
- Molecular weight and the consistency of molecule size in a sample;
- Particle size;
- Presence of low molecular weight residuals that might leach from the polymer;
- Electrical charge;
- Presence and nature of reactive functional groups;
- Resistance to physical, chemical, and biological transformation; and
- Resistance to heat and other environmental stressors.

As demonstrated in the referenced papers, fluoropolymers are insoluble substances and therefore concerns about the mobility of highly water soluble PFAS substances do not apply to fluoropolymers. Fluoropolymers are neither bioavailable nor bioaccumulative, are not long-chain non-polymer PFAS, such as PFOA and PFOS, and do not transform into long-chain non-polymer PFAS in the environment.

Both manuscripts have associated supporting information documents that provide detailed data and information that should be of interest to Ecology.

⁵ Henry, B.J., Carlin, J.P., Hammerschmidt, J.A., Buck, R.C., Buxton, L.W., Fiedler, H., Seed, J. and Hernandez, O. 2018. A critical review of the application of polymer of low concern and regulatory criteria to fluoropolymers. *Integr Environ Assess Manag*, 14: 316-334, <https://doi.org/10.1002/ieam.4035>.

⁶ Korzeniowski, S.H., Buck, R.C., Newkold, R.M., El kassmi, A., Laganis, E., Matsuoka, Y., Dinelli, B., Beauchet, S., Adamsky, F., Weilandt, K., Soni, V.K., Kapoor, D., Gunasekar, P., Malvasi, M., Brinati, G. and Musio, S. 2022. A critical review of the application of polymer of low concern regulatory criteria to fluoropolymers II: Fluoroplastics and fluoroelastomers. *Integr Environ Assess Manag*, <https://doi.org/10.1002/ieam.4646>.

In the case of nonstick fluoropolymer coatings on cookware, Ecology continues to make claims about “significant” gains in human and environmental health if the use were restricted. Ecology’s conclusion is at odds with the current state of scientific understanding and even contradicts the American Cancer Society, which states, “[t]here are no proven risks to humans from using these products. While PFAS can be used in making some of these coatings, it is not present (or is present in extremely small amounts) in the final products.”⁷ Both the German Federal Office of Risk Assessment and the European Food Safety Authority have concluded that potential emission of non-polymer PFAS from nonstick fluoropolymer coatings would occur at level so low as to not pose any concerns for human health.^{8,9} In addition, the French consumer advocacy organization 60 Millions de Consommateurs published a study and, although they detected very low levels of non-polymer PFAS, they concluded that they “were probably not used in the manufacturing of the pans but could have been introduced in an accidental manner during manufacturing, packaging or transport.”¹⁰ There are no “significant” gains in human health or environmental risk benefits from restricting the use of nonstick fluoropolymer coatings on cookware.

Finally, we request that Ecology clarify whether the concern about cookware and PFAS is limited to nonstick coatings. Does PFAS in cookware also extend to inaccessible internal components like air fryers, waffle makers, and similar countertop electronics? We would argue “no” because of the minimal, if any, potential for exposure to those components during normal conditions of use and misuse.

Thank you for the opportunity to provide these comments on Ecology’s draft regulatory determinations report for cycle 1.5 of the Safer Products for Washington Program. Please contact me if you have any questions (Jay_West@americanchemistry.com).

Jay West
Executive Director
Performance Fluoropolymer Partnership

⁷ American Cancer Society. 2023. Perfluorooctanoic Acid (PFOA), Teflon, and Related Chemicals. March 21, 2023. <https://www.cancer.org/healthy/cancer-causes/chemicals/teflon-and-perfluorooctanoic-acid-pfoa.html>.

⁸ Bundesinstitut für Risikobewertung. 2018. Ausgewählte Fragen Und Antworten Zu Geschirr Mit Antihafbeschichtung Aus PTFE Für Das Braten, Kochen Und Backen - BfR. www.bfr.bund.de. December 18, 2018. https://www.bfr.bund.de/de/ausgewaehlte_fragen_und_antworten_zu_geschirr_mit_antihafbeschichtung_aus_ptfe_fuer_das_braten_kochen_und_backen-7012.html#topic_7018%20Quelle:%20https://pfannenhelden.de/teflonbeschichtung-giftig/.

⁹ Schrenk, D., Bignami, M., Bodin, L., Chipman, J.K., del Mazo, J. Grasl-Kraupp, B., Hogstrand, C. *et al.* 2020. Risk to Human Health Related to the Presence of Perfluoroalkyl Substances in Food. EFSA Journal 18 (9). <https://doi.org/10.2903/j.efsa.2020.6223>.

¹⁰ Consommateurs, 60 Millions de. 2022. Poêles Antiadhésives: Nous Voulons Une Vraie Transparence. 60 Millions de Consommateurs. March 24, 2022. <https://www.60millions-mag.com/2022/03/24/poeles-antiadhesives-nous-voulons-une-vraie-transparence-19857>.