PERFORMANCE FLUOROPOLYMER PARTNERSHIP

January 22, 2021

Submitted electronically to ChemActionPlans@ecy.wa.gov

The Performance Fluoropolymer Partnership (hereafter "Partnership") welcomes the opportunity to provide these comments on Washington's draft Per- and Polyfluoroalkyl Substances (PFAS) Chemical Action Plan (CAP). The Partnership's members are some of the world's leading manufacturers and users of fluoropolymers, including fluoroplastics, fluoroelastomers and polymeric perfluoropolyethers.[1]

As the Departments of Ecology and Health work to finalize the CAP, it is crucial that the agencies take a science- and risk-based approach grounded in a thorough understanding of the broad family of PFAS. Consistent with such an approach, we appreciate that the draft CAP contains detailed descriptions of the different classes of PFAS chemistries and acknowledges fluoropolymers' unique combination of properties. In summary, fluoropolymers are characterized by high molecular weight and stability. They are too large to be bioavailable and are thus neither toxic nor bioaccumulative. They are not mobile and do not degrade into PFOA or PFOS in the environment. For all of the reasons detailed in the draft CAP, it is our position that including fluoropolymers in the CAP will do little to achieve the goal of protecting human health and the environment.

The PFAS-related environmental contamination issues currently facing Washington were found to be related to certain long-chain PFAS. Long-chain PFAS include PFOA, PFOS and their precursors, including long-chain fluorotelomer-based products. Through regulation, the United States Environmental Protection Agency's PFOA Stewardship Program[2] and voluntary initiatives, several major fluoropolymer manufacturers, including all Partnership members that manufacture fluoropolymers, have successfully phased out long-chain PFAS (including precursors), virtually eliminating these chemicals from their products and facility emissions globally.

While PFOA, PFOS and other long-chain PFAS are no longer produced by Partnership members and many other manufacturers, their production has not ceased globally. Companies that have not made similar stewardship commitments continue to produce, use and sell these substances and products containing them. This allows products containing long-chain compounds to enter Washington, potentially leading to human and environmental exposure. Therefore, we strongly urge the Departments of Ecology and Health to clearly focus the CAP's recommendations on actions that would

[1] The Performance Fluoropolymer Partnership's members are AGC, Inc., The Chemours Company, LLC, Daikin Industries, Ltd., Gujarat Fluorochemicals, Ltd., and ExxonMobil.
[2] See https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/fact-sheet-20102015-pfoa-stewardship-program.

help to eliminate any long-chain PFAS found at elevated levels in the state and their sources, including products imported into Washington that may contain long-chain PFAS. For example, recommendation 3.2 mentions using the Safer Products for Washington Program to better understand sources of PFAS in homes, workplaces and the environment. The intent and direction of this and other recommendations would be clarified and strengthened by underlining the importance of eliminating potential exposures to long-chain PFAS and their precursors.

In summary, including fluoropolymers in the CAP will do little to achieve the goal of protecting human health and the environment. The recommendations in the CAP should instead be very specific, focusing on long-chain PFAS and their precursors that may enter Washington from countries where the production of those substances still occurs.

Finally, we would like to offer the following comments on the text:

1. Page 171: Regarding the sentence “Currently, another PFAS subgroup—termed fluoropolymers or fluorotelomer-based acrylate polymers—are generally used for carpet stain resistance and carpet care treatments (Bowman, 2018; KEMI, 2015)”, fluoropolymers and fluorotelomer-based acrylate polymers are distinctly different classes of PFAS (see draft CAP Table 3, page 81, and the attached fact sheet from PlasticsEurope’s Fluoropolymer Products Group). After reviewing the two references at the end of the sentence, neither of which reports the use of fluoropolymers in carpet treatments, we suspect the reference to fluoropolymers is an error and should therefore be deleted.

2. Page 179: In the phrase “following voluntary phase-outs of PFOA and fluoropolymer manufacturing”, we suggest that “and” should be replaced by “in”.

Thank you for your consideration of these comments. Please feel free to contact me if you have any questions.

Sincerely,

Jay West
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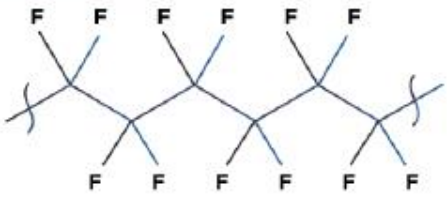
PlasticsEurope
Association of Plastics Manufacturers
Fluoropolymers Product Group

## Fluoropolymers *are very different in composition and structure as well as physical, chemical and biological properties* versus Side-Chain Fluorinated Polymers.

### Fluoropolymers (FP)



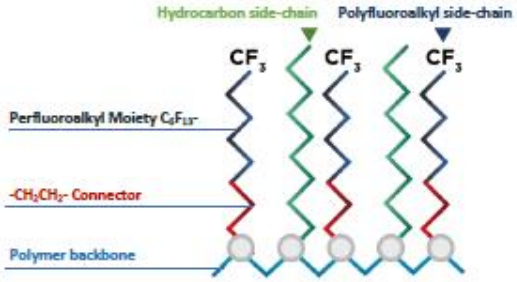

Polytetrafluoroethylene, PTFE

**Composition and Structure:** Fluoropolymers, such as polytetrafluoroethylene (PTFE), have *a carbon atom backbone with fluorine atoms (F) bound to the polymer backbone carbon atoms*. Fluoropolymers have molecular weights up to millions, meaning thousands of connected carbon atoms to which fluorine is bound.

Imagine a string of pearls one hundred thousand pearls long, each pearl representing a carbon bearing fluorine.

**Properties:** Fluoropolymers have *material properties*. They are chemically stable, biologically stable/inert, negligibly soluble in water, non-bioavailable, non-bioaccumulative; and non-toxic. (Henry et al. 2018). The unique properties of fluoropolymers include durability, mechanical strength, inertness, thermal stability, and resistance to chemical, biological, and physical degradation. (Henry, 2018).

### Side-Chain Fluorinated polymers (SCFP)




Side-Chain Fluorinated Polymer "comb" structure

**Composition and Structure:** Side-Chain Fluorinated Polymers are a *hydrocarbon polymer backbone* with a polyfluoroalkyl side-chain bound to the backbone that contains a six-carbon perfluoroalkyl moiety as well as side-chains that have no fluorinated carbons.

The polymer has a comb structure where some of the tines (aka teeth) are a side-chain with the perfluoroalkyl moiety (imagine six pearls, using the analogy above) while other side chains contain hydrocarbon functionality, no fluorine.

**Properties:** Side-chain fluorinated polymers have *surface properties*. They are polymer dispersions in water used as coatings applied to textiles, carpets, nonwovens and paper to provide water, soil, oil and stain resistance.

**Reference:** Henry, et al., 2018. A Critical Review of the Application of Polymer of Low Concern and Regulatory Criteria to Fluoropolymers. *Integrated Environmental Assessment and Management* 14(3): 316-334. http://dx.doi.org/10.1002/ieam.4035