Alliance for Telomer Chemistry Stewardship

January 28, 2022

Ms. Irina Makarow
Washington State Department of Ecology
Hazardous Waste & Toxics Reduction Program
300 Desmond Drive SE
Lacey, WA 98503

Submitted via:

RE: Draft Regulatory Determinations Report to the Legislature: Safer Products for Washington Implementation Phase 3

Dear Ms. Makarow:

The Alliance for Telomer Chemistry Stewardship (ATCS[1]) appreciates this opportunity to provide comments on the Draft Regulatory Determinations Report to the Legislature: Safer Products for Washington Implementation Phase 3 (hereafter the "Report") as it relates to per- and polyfluoroalkyl substances (PFAS). ATCS is a global organization that advocates on behalf of C6 fluorotelomer-based products. Our members are leading manufacturers of fluorotelomers in North America, Europe and Japan. Our mission is to promote the responsible production, use and management of fluorotelomers, while also advocating for a sound science- and risk-based approach to regulation.

We understand the important issues facing Washington regarding determining how to address levels of certain PFAS compounds in the State. Further, we appreciate the significant efforts the Departments of Ecology and Health have put into implementing the Safer Products for Washington program (SPW) and developing this draft Report. However, to ensure the success and viability of SPW, it is crucial that the Departments pursue a science- and fact-based approach to implementation. For products containing PFAS, this requires a thorough understanding of the broad family of PFAS compounds, assigning correct definitions, including their potential hazards and other characteristics as compared to available alternatives.

As drafted, however, the Report presents an inaccurate picture of the potential hazards associated with the PFAS-containing priority products addressed in the Report and it makes unsupported assumptions regarding the availability of suitable alternatives to replace those priority products. Because of this flawed analysis and inaccurate definitions, the recommendations in the draft Report are inappropriate and should be revised. Specifically, as discussed in more detail in the attached comments, the Report should be revised based on the science to recommend the restriction of long-chain PFAS, coupled with a notification requirement for the use of PFAS other than long chains in the Priority Products.

[1] AGC Chemicals Americas, Daikin American Incorporated, Dynax Corporation and Johnson Controls (JCI)

Outlined in the accompanying attachment are ATCS' specific comments on the draft Report. We would welcome the opportunity to discuss these comments with you further.

Thank you for your consideration, and please let me know if we can provide any additional information or answer any questions regarding our comments.

Sincerely,

Shawn Swearingen
Director, Alliance for Telomer Chemistry Stewardship

ATCS Comments on PFAS-Related Aspects of the Draft Regulatory Determinations Report to the Legislature: Safer Products for Washington Implementation Phase 3.

Per- and polyfluoroalkyl substances (PFAS), is a catch-all term that is used as a shorthand to refer to a widely diverse universe of chemistries, many of which are critical to making the products that power our lives – from cellphones and tablets, to alternative energy sources, to life-saving medical devices. However, all PFAS are not the same. Individual PFAS chemistries (and groups of similar PFAS chemistries) have their own unique properties and uses, as well as disparate environmental, health and safety profiles.

According to the U.S. Environmental Protection Agency, "approximately 600 PFAS are manufactured (including imported) and/or used in the United States." Among these 600 are substances in the solid (e.g., fluoropolymers), liquid (e.g., fluorotelomer alcohols) and gaseous (e.g., hydrofluorocarbon refrigerants) forms. Some of these substances are soluble in water and may be mobile in the environment, while others are not. Some are very large, stable molecules that are too large to be bioavailable, while others are comprised of relatively small molecules. These very distinct physical and chemical properties illustrate how varied PFAS substances are and why it is not appropriate to regulate all members of the category as if they were the same -- without examining the specific characteristics of the particular PFAS compounds (or categories of PFAS compounds) that are used in the priority product undergoing evaluation.

A scientific consensus is emerging that it is not appropriate or even possible to group all PFAS chemistries together for the purpose of regulation. Indeed, state and federal entities that have explored the possibilities of a class-based approach have recognized the significant challenges. For instance:

- ECOS, the Environmental Council of the States. which represents state and territorial environmental agency leaders, has acknowledged that, "Many regulators and subject-matter experts advise against grouping PFAS as an entire class."[2]

- The Vermont Department of Environmental Conservation[3], which was specifically charged by the legislature to develop a class regulation or to explain why such a regulation wasn't possible said, "The Review Team spent over a year deliberating, researching, and discussing the potential to regulate PFAS as a Class. After reviewing the current peer-reviewed literature, as well as the available toxicology data for PFAS, the Review Team determined that at the current time it is not feasible to regulate PFAS as a Class."

- Federal scientists participating in a workshop convened last fall by the National Academies of Science, Engineering and Medicine (NASEM) to review the federal PFAS research program acknowledged the broad diversity of properties within this group of substances, concluding that[4] "PFAS substances thus present unique challenges for grouping into classes for risk assessment." US EPA's Roadmap also recognizes this distinction within the broad class of PFAS and reflects

[2] ECOS. Processes & Considerations for Setting State PFAS Standards (February 2020).
[3] https://dec.vermont.gov/sites/dec/files/PFAS/20180814-PFAS-as-a-Class.pdf
[4] NASEM. Workshop on Federal Government Human Health PFAS Research, October 26-27. Board on Environmental Studies and Toxicology (2020). https://www.nap.edu/read/26054/chapter/1

EPA's intent to regulate PFAS based on sub-categories of PFAS chemistries that share certain fundamental properties[5].

The Draft Report Should Focus on the Specific PFAS Compounds Used in the Priority Products Under Consideration

While the underlying statute identifies PFAS as a chemical class and defines PFAS broadly, Ecology should focus its Phase 3 implementation efforts on the specific PFAS substances or subcategories that are actually used in the priority products being evaluated. Indeed, the statute itself recognizes that when a priority chemical is a "chemical class" rather than a single chemical substance, it is appropriate to examine individual ***members*** of the class when determining whether restriction is appropriate for a priority product. Thus, for example, RCW 70A § 1454(3) provides in relevant part that the "department may restrict or prohibit a priority chemical or ***members of a class*** of priority chemicals" if certain conditions are met (emphasis added). Accordingly, in evaluating whether restriction or some other regulatory determination is warranted for PFAS-containing priority products, the Department should focus its analysis on the specific PFAS chemicals or subcategories – i.e., the "members of the class" of PFAS chemicals -- that are actually used in those priority products.

With respect to textile and leather furnishings, the vast majority of PFAS treatments fall into a single sub-subcategory of PFAS chemicals, referred to as "side-chain" fluorinated polymers.[6] In general, side-chain fluorinated polymers are characterized as being either "short chain" polymers or "long chain" polymers, depending on the number of carbon atoms in their side chains. In developing regulatory determinations for these priority products, Ecology should have examined the specific hazards associated with side-chain fluorinated polymers to assess whether the alternatives under consideration are, in fact, "safer" than side-chain fluorinated polymers. Similarly, the Department should have compared the efficacy of side chain polymers to the performance of potential alternatives to assess whether those alternatives perform suitably for their intended uses. Ecology's failure to analyze hazard and performance in this manner is a serious shortcoming that must be remedied in the final Report.

The Draft Report Reflects a Flawed and Overly Simplistic Approach to Assessing Hazards

In evaluating the hazards of PFAS compounds compared to potential alternatives, Ecology relied almost exclusively on two tools: (i) pre-existing, available GreenScreen® assessments and (ii) third party lists of "safer" chemicals. Crucially, Ecology made no effort to ascertain what types of PFAS substances are used in the priority products being considered; nor did Ecology examine the available hazard data for the PFAS substances used in those priority products or comparable data on the proposed alternatives. As a consequence, Ecology's assessment does not accurately reflect the best available science nor does it present an accurate picture of the PFAS compounds that may be found in the priority products.

As discussed above, the PFAS compounds used in the manufacture of textile or leather furnishings belong to the category of side-chain fluorinated polymers. In the United States, Japan and Europe, all of the leading manufacturers of this category of compounds have transitioned to produce only ***short-chain***

[5] Goodrum PE et al. Application of a framework for grouping and mixtures toxicity assessment of PFAS: a closer examination of dose additivity approaches. Toxicol Sci: 1-19 (2020). https://doi.org/10.1093/toxsci/kfaa123

[6] We understand that PFAS compounds are no longer used to treat carpets and rugs manufactured in the US. (Personal communication with the Carpet and Rug Institute.) Accordingly, our comments focus primarily on leather and textile furniture and furnishings.

polymers (also referred to as "C6" polymers). Therefore, to the extent that PFAS chemicals are utilized in the manufacture of leather or textile furnishings in these regions of the world, the PFAS chemicals that are utilized are almost certainly "short chain" or "C6" side-chain polymer products.[7] Products that fall within this category have been thoroughly reviewed by regulators prior to introduction into commerce, are subject to ongoing review and are supported by a robust body of rigorous scientific health and safety data.

Because side-chain polymers themselves are not bioavailable, health and safety assessments of these compounds have included review of hypothetical breakdown (degradation) products. As reflected in the published scientific literature, studies have found that one of the primary potential breakdown products of C6 side-chain polymers, perfluorohexanoic acid (PFHxA or C6 acid), does not cause cancer (NTP 2018; Klaunig et al. 2015; Loveless et al. 2009); does not disrupt endocrine activity (Borghoff et al. 2018); does not cause reproductive or developmental harm (Loveless et al. 2009; Iwai et al. 2019, Iwai and Hoberman 2014); does not build up in the human body and does not become concentrated in the bodies of living organisms (Chengelis et al. 2009b; Iwai and Hoberman 2014; Russell et al. 2013, 2015; Nilsson et al. 2010, 2013; Fujii et al. 2015; Guruge et al. 2016; Gannon et al. 2011, 2016). However, to our knowledge, these data were not reviewed by Ecology or addressed in the draft Report; nor did Ecology review comparable data on the proposed alternatives.[8]

In addition to the robust body of data on PFHxA summarized above, a certified GreenScreen® assessment conducted by an independent Licensed GreenScreen® Profiler, is available for a representative short chain side-chain fluorinated polymer. The GreenScreen® assessment assigned a benchmark score of "2" to this short-chain polymer product.[9] A copy of that GreenScreen® report is included with these comments as "Attachment A." Under the rubric utilized by Ecology for the SPW program, products with a GreenScreen® benchmark score of "2" satisfy the minimum criteria for being considered "safer." Thus, the subcategory of PFAS compounds *actually used* in treated textile and leather furnishings in the US (i.e., C6 side-chain polymers) satisfy the minimum criteria to be considered "safer" for purposes of the SPW program.[10] This determination refutes the draft Report's conclusion that PFAS, as a class, do not meet the minimum criteria for safer.

As the foregoing discussion demonstrates, side-chain polymers are the subcategory of PFAS compounds that are used in the treatment of textile and leather furnishings. C6 side-chain polymers, in particular, are data rich; and those data support the conclusion that C6 side-chain polymer products used in leather and textile furnishings meet the minimum criteria to be considered "safer" for purposes of the SPW program.

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[7] By contrast, priority products that originate from other regions of the world might incorporate "long chain" fluorinated polymers, including polymers that may degrade to perfluorooctanoic acid (PFOA) or perfluorooctanesulfonic acid (PFOS).

[8] By comparison, the hazard data for long-chain breakdown products, such as PFOA, are less favorable. For example, studies indicate that PFOA bioaccumulates and there is "suggestive evidence of carcinogenic potential." *See,* USEPA, Health Effects Support Document for Perfluorooctanoic Acid (PFOA) (May 2016).

[9] Although the specific short-chain product evaluated in the GreenScreen assessment is not intended for use in treating textile or leather furnishings, the compound that was evaluated is typical of C6 side-chain compounds, including those that are used as leather or textile treatments.

[10] *See* Draft Report at 237.

The Draft Report's Assessment of the "Feasibility" of Alternatives is Incomplete and Unreliable

The draft report focuses almost entirely on the ease of cleaning and associated aesthetic value of the water and oil repellency imparted by "PFAS" (i.e., C6 side-chain) leather and textile treatments, but it ignores other benefits that are equally if not more important. These include: resistance to contamination by biological fluids, including those that may be vectors of disease, and increased durability – resulting in the generation of less waste and the consumption of fewer resources. In addition, Ecology failed to adequately address how different degrees of performance may be necessary, depending on specific conditions of use (e.g., heavily trafficked public spaces versus private indoor spaces).

The report fails to assess, in an objective and measurable way, whether the proposed alternatives provide the same benefits and the same level of performance as C6 short-chain products under all relevant conditions of use. Instead, Ecology largely relies on advertising and promotional materials, and other subjective measures, to conclude that alternatives are "feasible and available."

However, empirical data indicate that at least for some applications (e.g., outdoor furnishings) available alternatives do not provide an adequate level of performance, as compared to C6 side chain polymers. For example, in comments recently submitted to the European Chemicals Agency (ECHA), the European Apparel and Textile Industry Confederation (EURATEX) reported on the results of testing conducted on potential alternatives to fluorinated treatment products. One research program being carried out by a consortium of textile and related organizations, called MIDWOR-LIFE, found that "alternative products achieved a water repellence matching the performance of conventional fluorinated products; however [their] performance against oil did not reach an acceptable level."[11] As noted by EURATEX, pollution is one of several factors that contribute to the degradation of outdoor furnishings, and oil resistance is essential to providing protection against pollution.[12]

EURATEX also reports on testing of potential alternatives to C6 side-chain polymers conducted by a French manufacturer of upholstery fabric for outdoor use.[13] Testing of ten alternative formulations (from an initial suite of 22 potential alternatives) showed that while performance, other than oil resistance, was acceptable initially, overall performance rapidly declined to unacceptable levels following weathering.[14] According to EURATEX, because of these unacceptable results, the manufacturer is currently investigating new formulations for testing.

As this example illustrates, assessing whether an alternative is "feasible" for a product requires more than an examination of the claims that are made for a commercial product or the successful marketing of a product that touts some of the broad benefits imparted by C6 side chain polymers. To ensure that a potential alternative is actually "feasible" – and that products with important functionalities are not removed from the market without a suitable alternative -- it is essential for

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[11] *See* EURATEX contribution to the SEAC public consultation: Comments on SEAC Draft Opinion on the proposed restriction for PFHxA, its salts and related substances (September 2021) at page 8, accessible through the following url: https://echa.europa.eu/registry-of-restriction-intentions/-/dislist/details/0b0236e18323a25d under the heading "ORCOM part 2."

[12] *Id.*

[13] *Id.* at p 9.

[14] *Id.*

Ecology to fully examine both the specific contexts within which treated-furnishings are used (e.g., heavily trafficked spaces; indoor spaces, such as nursing homes, with special health-related considerations; outdoor spaces vulnerable to air pollution, etc.) as well as the particular functionality provided by the C6 short chain product in each specific context. Then, as a second step, Ecology must examine objective data to assess whether, for each relevant use scenario, the potential alternative provides equivalent functionality as compared to the C6 side chain product. To the extent that Ecology does not currently possess all of the information needed to perform this analysis, the Department should utilize the authority provided in RCW 70A.350.040 to collect such information from manufacturers.

The Draft Report's Recommendations Should be Revised

In light of the deficiencies discussed above, the Recommendations in the draft Report are inappropriate and should be revised. In particular, the proposed restrictions are inappropriate for C6 side chain polymer products, since (i) those products satisfy the SPW minimum criteria for being "safer" and (ii) Ecology has failed to adequately assess whether, for leather and textile furnishings, alternative products or processes are suitable for all relevant use scenarios. Instead, for leather and textile furnishings, Ecology should consider the following recommendations:

- Utilizing the authority provided in RCW 70A.350.040 to collect the information needed to conduct a thorough assessment of the feasibility of alternatives to C6 side-chain polymer products.
- Adopting a notification requirement for leather and textile furnishings manufactured using C6 side-chain polymers, so that purchasers can chose alternative products if they do not require the functionality provided by C6 side-chain polymer products.
- Imposing restrictions on leather and textile furnishings manufactured using long-chain PFAS compounds, which have not been shown to meet the SPW minimum criteria for safer.