AmericanCoatings
ASSOCIATION℠

December 20, 2024

Siobhan McIlhoney
Green Seal
601 13th St NW, 12th Floor
Washington, DC 20005

RE: Comments on proposed changes related to PFAS reflected in *GS-11 Standard for Paints, Coatings, Stains and Sealers*.

Submitted online at: https://greenseal.org/pages/pfas-prohibition/

Dear Mrs. McIlhoney,

The American Coatings Association (ACA) appreciates the opportunity to comment on Green Seal's proposed changes to standard GS-11 related to per- and polyfluoroalkyl substances (PFAS) in paints, coatings, stains and sealers. ACA is committed to advising Green Seal to help improve product standards. The Association's membership represents 90% of the paint and coatings industry, including downstream users of chemicals, as well as chemical manufacturers. Our membership includes companies that manufacture a variety of formulated products including paints, coatings, sealants and adhesives and their raw materials.

I. Introduction

Regarding proposed changes to GS-11, ACA cautions against establishing a standard that assumes PFAS are readily substitutable. Certain types of fluorinated chemistries are essential to developing high-performance coatings. Other types are used to formulate low-volatile organic compound (VOC) architectural coatings and other low-VOC products. Certain products have no viable "PFAS" substitute. Although, ACA generally will refer to these substances as "PFAS," please note that fluoropolymers and the short-chained fluorinated solvents used by industry are not the types of "PFAS" associated with contamination.

The proposed changes to GS-11 also do not accurately reflect the marketplace for PFAS in coatings, nor are they indicative of environmental or human health impact of coatings with fluorinated chemistries. In effect, the proposed changes will result in lowering the utility of the GS-11 standard for the coatings industry. Maine and Minnesota are not the market drivers for PFAS in products. It remains uncertain how these states will implement their laws, and how companies will adapt distribution strategies. Both states also have processes for currently unavoidable use designations that may allow for continued use

of essential products with fluorinated chemistries. For example, ACA notes essential use in coatings used to protect critical infrastructure, water delivery systems, medical devices, low-VOC coatings, etc.

Due to these uncertainties, Vermont is currently developing their PFAS reporting requirements by aligning with the definition of PFAS in U.S. EPA's Toxic Substances Control Act (TSCA) Section 8(a)(7) PFAS reporting rule. In Vermont's view, the wide range of chemicals in commerce covered by this definition goes beyond the universe of toxic PFAS that is the focus of their policy. It also focuses their requirement on data that all manufacturers will have due to Federal-level compliance initiatives. ACA has provided comment about the importance of alignment with EPA in its comment submitted to Green Seal in December 2023. ACA will not repeat that information here. Nonetheless, we hope you will reconsider this matter.

ACA and its members respectfully submit the following information regarding the issues described above:

I. Substitutes are not readily available for paints, coatings, stains and sealers.

ACA cautions against a general assumption that fluorinated chemicals will be substituted in paints, coatings, stains and sealers. Alternatives analysis is product and chemical specific, factoring in a variety of performance and technical factors. Some non-governmental organizations (NGOs) are suggesting silicone-based polymers as a drop-in PFAS substitute, but these do not function in the same manner for most formulated products. As discussed below, both the OECD (Organization for Economic Co-operation and Development) and the DoE (Department of Energy) indicate that fluoropolymer-containing architectural coatings, used on external buildings and structures, lose critical functionality when substituted. More frequent application of a less-effective paint results in additional environmental considerations. Also, as described below, a short-chained fluorinated solvent is used to maintain low-VOC levels in paint.

II. Certain high-performance coatings incorporate fluoropolymer chemistries.

Fluorinated chemistries are sometimes necessary to meet high performance standards, often reducing raw materials and energy usage due to durability of the fluorinated product. Further, paint manufacturers may formulate products to meet standardized performance requirements, such as the American Architectural Manufacturers Association (AAMA) 2605-20 (2020) *Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix)* or *SSPC Paint 47, Highly Weatherable Fluoropolymer Topcoat, Performance-Based***.** Federal agency specifications and municipal codes may adopt these and other related performance standards as requirements for coatings. Another application includes intumescent coatings on industrial buildings used to delay or stop the spread of industrial fires.

ACA encourages Green Seal to consider the necessity of fluoropolymers to meet certain performance specifications. Fluoropolymer binders are essential for providing the kind of durability, safety, and sustainability that permit long lifespan protective coatings for critical infrastructure such as bridges, buildings, and other structures; and are specified to meet several architectural industry performance standards, such as AAMA 2605, SSPC Paint 47, etc. Less effective technologies will lead to greater waste and replacement costs as well as a higher risk of structural deterioration and aesthetics reduction.

III. OECD publication regarding PFAS in paints and coatings notes that replacements do not perform at the same level as coatings with fluoropolymers

In January 2022, the OECD published *Per- and Polyfluoroalkyl Substances and Alternatives in Coatings, Paints and Varnishes (CPVs) (Report on the Commercial Availability and Current Uses)*.[1] The report considers uses, function and efficacy of alternatives to PFAS as used in paints and coatings, while focusing on three types of products:

- Coatings for cables and wiring;
- Coatings used on solar panels; and
- Household and architectural paints, while mostly focusing on paints for bridges.

For most uses, OECD concludes that performance characteristics of coatings with fluoropolymers make them more desirable products than their non-performing alternatives.[2] Use of coatings with fluoropolymers is limited by need where a buyer is willing to pay additional costs for high-performance characteristics. When considering bridge paint, the OECD concludes that,

> [I]t would cost approximately 26 % more with the FP (fluoropolymer) based coating compared to polyurethane. However, after 30 years it was concluded that the total cost for the polyurethane coating would cost 16 % more than the FP-based coating, owing to the faster degradation of the non-PFAS coating and therefore a need for more frequent recoating, with associated labour and material costs.

Additional material and manufacturing costs associated with non-fluoropolymer alternates have an environmental impact from increased use of raw materials, energy consumption, waste production and disposal, etc. ACA recommends considering the overall environmental effects of removing a high-performance coating with fluoropolymers from the market.

IV. Fluoropolymers used in coatings do not have properties associated with PFAS contamination

Fluoropolymers are considered "polymers of low concern" (PLC) recognized by several regulators, since they are chemically stable, non-toxic, non-bioavailable, non-water soluble and non-mobile. Recently, the State of Washington, Department of Ecology (hereinafter, "Ecology"), when considering fluoropolymers as part of its review of PFAS under *its Safer Products for Washington* program, concluded:

> 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

[1] *Alternatives in Coatings, Paints and Varnishes (CPVs) (Report on the Commercial Availability and Current Uses)* (hereinafter, "OECD Report") is available online at: https://www.oecd.org/chemicalsafety/portal-perfluorinated-chemicals/per-and-polyfluoroalkyl-substances-alternatives-in-coatings-paints-varnishes.pdf

[2] OECD Report at p. 65-66

> use in medical devices has [sic] demonstrated lack of chronic toxicity or carcinogenicity and no reproductive, developmental, or endocrine toxicity.[3]

The two studies Ecology relies on, from *Henry, et. al*. and *Korzeniowski*, evaluated criteria to conclude that fluoropolymers are not mobile, bioavailable or bioaccumulative. Further, they do not transform into long chain, non-polymeric chemistries associated with PFAS contamination. Fluoropolymers have fundamentally different chemistry from PFOA, PFOS and other PFAS chemicals associated with contamination. Because of these qualities, fluoropolymers have been classified as "polymers of low concern" by regulators.[4]

The DoE (Department of Energy) recently concluded that fluoropolymers are distinct from non-polymeric PFAS chemicals in its report, *Assessment of Fluoropolymer Production and Use with Analysis of Alternative Replacement Materials* (published January 2024). This DoE report explains that due to the relatively smaller molecular weight, non-polymeric PFAS are mobile in a variety of media, increasing particle dispersion. Significantly higher molecular weight of all forms of fluoropolymers, over non-polymeric PFAS, makes fluoropolymers stable and non-water soluble compared to non-polymeric forms. The report notes that current literature suggests that fluoropolymers are generally non-mobile and cannot permeate the cell membrane. Some reports disputing these conclusions note evidence related to polymers rather than fluoropolymers.

The DoE further explains that,

> The unique characteristics of fluoropolymers can enhance product durability, sustainability and safety. Products that are lighter and longer-lasting will generally have lower life cycle costs, embodied energy, transportation-related emissions, and safety risks.

Benefits of fluoropolymer usage in building construction and infrastructure are covered in Section 2.4.3, page 2-11 of the report. Fluoropolymer coatings can reduce building cooling costs and improve energy efficiency by up to 22%. Fluoropolymer coatings reduce building maintenance by extending building life, even in harsh environments, while enhancing overall stability. Fluoropolymer coatings also are resistant to dirt adhesion enhancing their solar reflective and protective properties.

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[3] Washington Department of Ecology, *Per- and Polyfluoroalkyl Substances Chemical Action Plan*, p. 97, Sept. 2022 revision of original publication from April 4, 2021, available online at: https://apps.ecology.wa.gov/publications/documents/2104048.pdf.

[4] See 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, available online at: https://doi.org/10.1002/ieam.4035;
See also 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, available online at: https://doi.org/10.1002/ieam.4646.

For the reasons noted above, Canada proposed to exclude fluoropolymers from its definition of PFAS for regulatory purposes, proposed in its *Updated Draft State of Per- and Polyfluoroalkyl Substances (PFAS) Report*[5].

ACA recommends removing fluoropolymer-based paints from the scope of covered products.

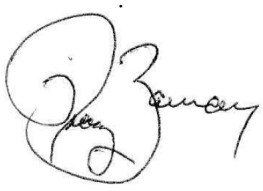
I. Low-VOC architectural coatings are possible due to a short-chained fluorinated solvent.

ACA recommends updating the standard to note that short-chained PFAS are a critical component of low-VOC coatings. Advancements in coatings technology have led to significant reductions in volatile organic compound (VOC) emissions from paints and coatings. These changes are facilitated by a short-chained fluorinated solvent not associated with contamination of waterways. California's South Coast Air Quality Management District (SCAQMD), which includes the Los Angeles area, has the most stringent air emissions regulations in the country, due to air quality issues in the district. As such, ACA analyzes the air quality data collected by the local air district since it is a great indicator of emissions trends globally. The data collected in this area demonstrates that, despite increasing sales, emissions from architectural coatings have decreased by more than 40% since 2008. This dramatic reduction in emissions illustrates the industry's commitment to reducing its environmental footprint and improving air quality.

I. Conclusion

ACA appreciates Green Seal's willingness to discuss its proposed standard revisions with ACA. ACA recommends that Green Seal modify its definition of PFAS to eliminate chemicals with one fluorinated carbon atom and fluoropolymers. Please feel free to contact us if we can provide any additional information. We look forward to continuing our engagement with you.

Sincerely,



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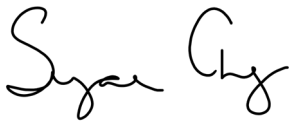

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[5] See the Executive Summary in the Canadian Gazette, July 2024: https://www.gazette.gc.ca/rp-pr/p1/2024/2024-07-13/html/notice-avis-eng.html#ne3.