November 17, 2017

Governor Jay Inslee
Office of the Governor
P.O. Box 40002
Olympia, WA 98504

Dear Governor Inslee:

On behalf of the FluoroCouncil, its member companies, and the undersigned organizations, we would like to provide you with the following information aimed at clarifying some of the concerns and misconceptions that have arisen regarding a large group of chemicals known as per- and polyfluoroalkyl substances. Although these substances are often referred to by a single acronym (PFAS), they actually comprise a large and quite diverse class of chemistry.

As you may know, the Department of Ecology and the Department of Health are currently working on a chemical action plan (CAP) for PFAS substances. As this process plays out, we feel it is important to provide this clarifying information. Many PFAS chemicals are critical to industries, such as aerospace, that are of great importance to the State of Washington. In some applications, such as firefighting foam used at airports and military installations, PFAS are required to meet federal standards. Other PFAS chemicals enhance the functionality and durability of numerous products Washington's consumers and industry rely on every day. However, a small group of PFASs (namely "long-chain" perfluoroalkyl acids known as PFOS and PFOA) have been associated with drinking water contamination issues at a number of locations around Washington.

It is important to understand that the current contamination issues are limited to a few specific "long-chain" PFASs. It is also important to understand that the toxicological and environmental characteristics of this small group of "long chain" PFASs are not representative of the broad range of substances that can be described as PFASs. In particular, a large body of scientific data demonstrates that the toxicological and environmental concerns associated with these "long chain" chemicals are not associated with fluoropolymers or the "short-chain" "C6" chemistry developed by FluoroCouncil members. Because of the diverse characteristics of the various chemistries that fall within the broad class of "PFAS" chemicals, it is not appropriate, from a scientific standpoint, to make the broad and inaccurate assertion that all PFASs are the same or similar. It is also inappropriate, from a public policy perspective, to impose one-size-fits-all policies or regulations on all PFAS chemicals. Instead, it is essential that such policies and regulations adequately take into account each substance's specific properties, socio-economic value, and risk profile.

Because PFAS chemicals comprise such a large class of chemistry with a broad range of differing characteristics, structures and intended uses, it is helpful, and more appropriate, to consider separate and distinct sub-groupings of substances within the broad category. For example:

- *Fluoropolymers:* Fluoropolymers are high molecular weight polymers that are highly stable, too large to be bioavailable, insoluble in water, and do not degrade in the environment into perfluoroalkyl acids. They are considered to present no significant risk to human health or the environment by most regulators across the globe, including the U.S. EPA. These specialty plastics are used in a wide variety of applications in the aerospace industry; wire and cable coatings; linings for pipes, tanks and equipment in semiconductor, chemical, and pharmaceutical manufacturing; and many important medical devices.
- *Fluorotelomer-based polymeric products:* These products can be based on either "long-chain" or "short-chain" chemistry. The polymeric fluorotelomer-based products (also called side-chain fluorinated polymers) are used to provide water, oil and stain repellency treatments in textiles, carpet, and paper applications. Fluorotelomer-based products themselves are also widely understood not to present toxicity concerns when used as intended, and the fluorinated polymers are not bioavailable. These fluorotelomer-based polymers can be considered precursors for perfluoroalkyl acids; and a sub-set of perfluoroalkyl acids (namely, "long-chain" acids) are the focus of regulatory concern.
- *Fluorotelomer-based non-polymeric products:* These products can also be based either on "long-chain" or "short-chain" chemistry. The non-polymeric fluorotelomer-based products are used in applications such as fire-fighting foams and as raw materials used in feedstocks to produce polymeric fluorotelomer-based products.

The substances of primary concern to regulators have been long-chain perfluoroalkyl acids, specifically PFOA and PFOS, and long-chain fluorotelomer based products that can degrade to form these long-chain perfluoroalkyl acids. These long-chain perfluoroalkyl acids have been associated with potential health effects and environmental contamination issues near point sources, such as those experienced in Washington. By contrast, it is important to realize that the short-chain fluorotelomer-based products (and their associated short-chain acids), most notably those based on C6 chemistry, are very well characterized and have been found NOT to have the same potential health and environmental effects as PFOA and PFOS.

In response to public concerns that arose over PFOA and PFOS more than a decade ago, the FluoroCouncil member companies developed new products, including PFASs based on C6 short chains, which provide comparable properties and benefits to long-chain products, at similar concentrations, with much improved health and environmental profiles.

Over the past decade or more, FluoroCouncil member companies have developed a robust body of scientific data on these new products, the raw materials used to produce them, and their

degradation products. Significant toxicity and environmental data have been provided to regulators globally for systematic chemical review processes and some of these data have been published in the scientific literature.[1] These data show that while the structures of short-chain PFASs may be similar to their long-chain counterparts, the short-chain chemistry is typically very different from the long-chain chemistry. Short-chain substances are eliminated more rapidly from the body and are less toxic than long-chain substances. Using these data, regulators around the world have permitted the use of C6 PFAS products.

Recently, some groups have raised concerns about the role some products play in exposure to PFAS, with a particular focus on firefighting foam (AFFF) and food packaging, supported by claims that non-fluorinated alternatives are available for these applications. These concerns are misplaced when it comes to products that incorporate short-chain C6-based chemistries because a large body of data supports their safety. Moreover, claims asserting the ready availability of non-fluorinated alternatives fail to consider the generally inferior performance of those "alternatives." For example, fluorine-free foams are not as effective as short-chain-based AFFF, leading to longer extinguishment times, and thus the fluorine-free foams do not meet important military specifications. Non-fluorinated alternatives for food packaging do not provide the same oil and grease protection properties as FDA-approved C6-based fluorotelomer products and are more expensive and of greater bulk, contributing to increased disposal costs and volume of waste produced.

Unfortunately, all PFAS manufacturers globally have not made the same stewardship commitments, and the production, use, and global trade of PFOA, PFOS, and related long-chain PFAS continues in China, India, and Russia with little, if any, restriction. Further, the import of consumer articles made with or containing these long-chain PFAS is permitted in the U.S., leading to the continued contribution of these substances into Washington's environment.

We support the efforts of the Departments of Ecology and Health to develop a CAP for PFASs. Recognizing the diversity of substances that fall within the PFAS class, many of which do not present significant health or environmental risks, along with the socio-economic value of this chemistry, it is vital to focus the CAP on those PFAS of real concern to Washington: PFOA, PFOS, as well as other long-chain compounds and their precursors and products that can degrade to form these substances.

Sincerely,

Jessica Bowman
FluoroCouncil

Gary Chandler
Association of Washington Business

[1] FluoroCouncil maintains a compilation of peer-reviewed publically available literature relevant to the short chain PFASs at https://fluorocouncil.com/Resources/Research.

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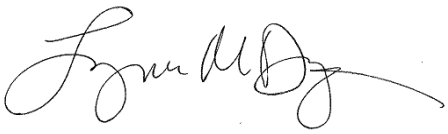

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