



State of Washington
Department of Ecology
Per- and Polyfluoroalkyl Substances Draft Chemical Action Plan

Comments Submitted by Arkema Inc.

January 22, 2021

Arkema Inc. (“Arkema”) appreciates the opportunity to provide comments on the Washington Department of Ecology’s Per- and Polyfluoroalkyl Substances Draft Chemical Action Plan. Arkema is a global chemical manufacturing company with operations in 22 states, including Pennsylvania where our North American headquarters is located. Arkema provides over 3,500 jobs in the U.S. and our presence is greatly important to the local communities that are home to our manufacturing and/or research facilities, as well as to the many customers that use our products. In particular, Arkema manufactures Kynar® PVDF fluoropolymers that are used in a variety of important applications, including in the processing of some plastic packaging applications manufactured by our customers. Other key applications for Arkema’s PVDF fluoropolymers include uses in lithium ion batteries, wire and cable jacketing, semiconductors, solar energy, water filtration, cool roofing and construction coatings.

Arkema produces PVDF homopolymer and copolymer grades, which are used by some customers as additives (in the range of 100 to 2000 ppm) to improve the extrusion and molding efficiency of some common plastics often used in packaging. Arkema has been a pioneer in the reformulation of these grades to be produced entirely **without the use of PFAS surfactants**. This extraordinary technical innovation required many years of dedicated R&D efforts. These innovative grades have now been fully industrialized and commercialized for several years. Arkema’s PVDF resins that are produced without the use of PFAS surfactants are marketed under the Kynar® FSF® PVDF trademark.

Arkema supports the move away from PFAS-containing products that may impact human health and the environment. We are concerned, however, that the draft uses an overly broad definition of PFAS that could unnecessarily capture fluoropolymers themselves. We believe, instead, the PFAS surfactants¹ commonly used to produce certain fluoropolymers are in fact the target of concern. **We believe that fluoropolymers made without the use of PFAS surfactants should not be restricted in any way.**

High molecular weight fluoropolymers are sometimes grouped as “polymeric PFAS”, including Arkema FSF® PVDF, even though this product is made without PFAS surfactants. This PFAS categorization is misleading, as FSF® PVDF meets the definition of polymers of low concern (“PLC”), which is internationally well established, based on the OECD set of criteria. PLC are

¹ Examples of PFAS surfactants are PFOA, PFOS, and their replacement “short chain” PFAS surfactants.

² <https://setac.onlinelibrary.wiley.com/doi/full/10.1002/ieam.4035>



deemed to have insignificant environmental and human health impacts. Further, PVDF itself is not listed in the US EPA toxic release inventory database of PFAS substances <https://www.epa.gov/toxics-release-inventory-tri-program/list-pfas-added-tri-ndaa> (updated January 8 2021).

The use of these FSF® PVDF materials (produced without the use of PFAS surfactants) in the industrial production of flexible film packaging is a sustainable, green solution that:

- Saves energy (by producing higher quantities for energy expenditure);
- Simplifies and improves recycling (the processed polymers are easier to recycle on standard equipment);
- Reduces the amount of commodity plastic produced (the PVDF materials enable thinner films, thereby reducing the resultant weight of plastic produced).

In short, Arkema's FSF® PVDF polymer additives help optimize energy consumption, improve recyclability, and minimize plastic production volumes. And, they are produced entirely without the use of PFAS surfactants.

Thank you, in advance, for your consideration.