

Arkema Kynar® PVDF

Comments on Annex XV restriction report

Restriction on the manufacture, placing on the market and use of PFAS

Executive Summary – Public Version

Arkema, a PVDF fluoropolymer producer, welcomes the opportunity to share data and information in the context of evolution of the EU restriction proposal on PFAS. In this first submission we focus the data sharing on safety during the life cycle including toxicological and ecotoxicological information, emissions, end-of-life, and socio-economic impacts. We provide hereafter lots of data in respect of the scientific approach of Reach regulation that must remain the rule for risk analysis.

Kynar® FSF® PVDF homopolymers and copolymers are used in industrial applications. They are designed for extreme inertness in harsh environments, flame & smoke properties, weather resistance, durability, and ease of processing. They are of strategic importance for European industry and sovereignty as well as the EU Green Deal, for electric vehicle batteries, semiconductor chips manufacturing, 5G, hydrogen production, the manufacture of industrial safety equipment and medical equipment, water filtration, building insulation, heat pumps and solar energy. More details on specific usages features and benefits, emissions, existence, and viability of alternatives will be provided in a second submission.

As detailed in chapter 3 of our public consultation answer and in light of their low bioavailability, Kynar® FSF® PVDF are considered not to pose risks to human health, have a favorable (eco)toxicological profile, and meet the OECD definition for polymers of low concern. The aforementioned points are the specific reasons why the United Kingdom PFAS RMOA has proposed a specific exemption for fluoropolymers, classified in the low hazard groups.

Thanks to intense research and development activities, Arkema has developed an innovative patented technology to produce PVDF fluoropolymers without the use of PFAS polymerization aids (commercialized as Kynar® FSF® PVDF), using only non-fluorinated polymerization aids. Today, Arkema's two largest PVDF production plants do not use PFAS polymerization aids at all in the manufacture of PVDF. The last plant will achieve his transition to this new technology by the end of 2024.

Regarding emissions in different medias along the whole life cycle, calculation have been made including manufacturing stage, transformation and use by specific application.

Regarding socio-economic impacts, a calculation following ECHA guidelines has been performed for production and use of Arkema Kynar® PVDF in Europe. Potential impact of the restriction is quite huge in term of cost per kilo of emission saved which might question the proportionality of the restriction.

Regarding end-of-life Kynar® FSF® PVDF, data on land-fill, incineration and recycling are provided.

Based on the scientific and economic data provided in this answer to the public consultation, Arkema's preferred option is to support a more segmented approach based on the level of risk of the substance to facilitate the effectiveness and implementation of the restriction.

In conclusion, within this approach, Arkema considers that fluoropolymers produced without PFAS polymerization aids deserve an exemption. The potential emissions as well as the end of life can be effectively managed through alternatives regulations such as the Waste directive, the Landfill directive and the industrial emissions directives.

As an alternative option, Arkema could support selective sector specific derogations based on absence of alternative. Based on the information gathered from our customers and downstream users, in many applications no viable alternatives are available or may require an important compromise on the combination of properties, whilst used in critical applications for the society. We will complete the submission in the coming weeks with data on applications and alternatives. This proposed derogation language will cover (but may not be limited to) the following applications:

1. The chemical processing industries,
2. Semi-conductors manufacturing,
3. Construction coatings,
4. Lithium-Ion Batteries,
5. Wastewater Filtration Membranes,
6. Flexible Photovoltaic Cell Manufacturing,
7. Sterile filtration and aseptic processing for the pharmaceutical industries
8. Polymer Processing and Recycling Aids