

General Comments

We welcome the opportunity to contribute to the public consultation initiated by the European Chemicals Agency (ECHA) regarding potential restriction of Per- and polyfluoroalkyl substances (PFAS) according to Regulation (EC) No. 1907/2006 ("REACH").

We support the implementation of the regulation to restrict the manufacture and use of certain hazardous PFAS such as PFOS, PFOA. However, we believe that the proposed restriction should not regulate all substances defined as PFAS, but rather identify more detailed substance groups which have similar toxicity profiles based on scientific evidence and should establish appropriate restrictions for each substance-groups based on their human health and environmental impacts.

We have prepared our **General Comments** on fluoropolymers, particularly PVDF, and their uses, as follows.

Validity of structural definition of PFAS for Fluoropolymers (FP) (PVDF (Polyvinylidene fluoride), PTFE (Polytetrafluoroethylene), FKM (Fluoroelastomers))

The OECD online seminar (OECD 2022) provides a detailed introduction to the chemical structure of PFASs, the physical properties of long-chain PFASs and side-chain fluoropolymers (SCFPs), and the origin of their stability. In it, $-(CF_2)_n-$, $n \geq 2$ is treated as the basic unit of PFASs, but the structure and properties of the basic structural unit of PVDF, $-CF_2-CH_2-$ (VDF, vinylidene fluoride monomer unit), are not mentioned. In addition, FPs, which are polymeric PFASs, are not mentioned in the OECD online seminar. The functionality and safety of PTFE and FKM, which are considered polymeric PFASs, are not mentioned; the scientific studies and explanations that make FPs subject to PFAS regulation are unclear and do not provide the necessary and sufficient information for regulation, which raises questions about the adequacy of the proposed regulation.

References

OECD (2022): Advances in Understanding Per- and Polyfluoroalkyl Substances, OECD Webinar, OECD Chemical Safety and Biosafety, 2022.
https://youtu.be/Lp_cS8Vi-FE uploaded 2022/12/08. (last accessed 25.04.2023)

Fluorosurfactants in FP manufacturing

Previously, fluorosurfactants, which are PFAS, were often used in the manufacture of PTFE and FKM, but these are now being replaced by alternatives. PVDF is produced by both emulsion and suspension polymerization, in a 50/50 ratio, as stated in the

proposed regulation of the ECHA. Suspension polymerized PVDF is predominantly used in lithium-ion batteries (LIB) binder applications. In the case of suspension polymerization, FPs do not use fluorosurfactants, which means that there is no concern about environmental pollution.

Economic, social, and political impacts

Proposed Regulation XV prohibits the use of major FPs in almost all applications. PTFE, PVDF and FKM are widely used in industry and society due to their unique properties. If alternatives do not exist or are not available in time, the impact on industry and the economy could be devastating; the PFAS regulation is very stringent and could even have a very negative impact on society. We comment on the implications of this proposed regulation (Section 6 of this Consultation) using examples of Binders for LIBs (Lithium-ion Batteries) as well as EVs (Electric Vehicles) with these batteries.

Proposed Regulation XV needs to be reconsidered

ECHA is expected to collect information and opinions in this consultation and then conduct a joint study by industry, academia, citizens and government and present new proposals and amendments. There are concerns that the proposed regulation lacks administrative and legal procedures, scientific research, methods for building social consensus and scientific content. In particular, the proposed regulation XV seems to lack validity in that it does not distinguish between manufacturing method and additives for the major FPs (PTFE, PVDF, FKM), and does not consider the impact economy and social impacts. It would be proper to exempt most FPs from the regulation. (FCJ 2023) To avoid social and economic disruption, it would be prudent for ECHA to consult and review with other EU institutions and structures, industry, and academia, and to amend the proposed regulation. It would also be necessary to fully explain the administrative and legal procedures and their consistency with other legislation.

References and attachments

FCJ (2023): Comment on Proposed Restriction of PFAS, Conference of Fluoro-Chemical Product Japan (FCJ). https://cfcpj.jp/pdf/FCJ_Comment_on_PFAS.pdf (last accessed 18.05.2023)

Thank you for reading.