

Comment on Proposed Restriction of PFAS

May 25, 2023

Japan Fluoropolymers Industry Association (JFIA)

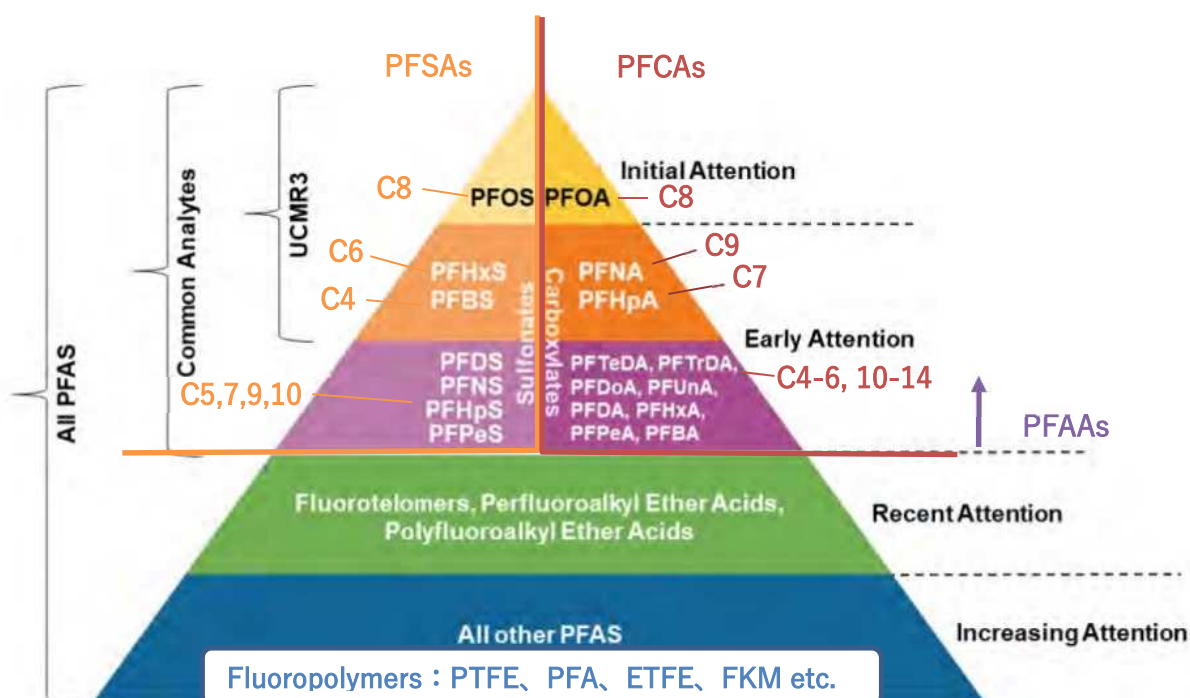
We, Japan Fluoropolymers Industry Association (JFIA), think that fluoropolymers should be distinguished from the proposed restriction of PFAS (Per- and polyfluoroalkyl substances), which collectively regulates more than 10,000 of organofluorine compounds (PFAS) on the grouping basis. We believe fluoropolymers should be exempt from its restriction because they differ from other PFASs in physical, chemical and toxicological properties.

We support the statement made by the Conference of Fluoro-Chemical Product Japan (FCJ) on the issues of proposed restriction*¹. In particular, we support the exclusion by PFAS subcategory with the following views. Therefore, we request for exemption of fluoropolymers from the proposed ban on EU market through ECHA's public consultation.

*1 Conference of Fluoro-Chemical Product Japan (FCJ). April 25, 2023. *Comment on Proposed Restriction of PFAS*: <https://cfcj.jp/european-pfas-lp.html>

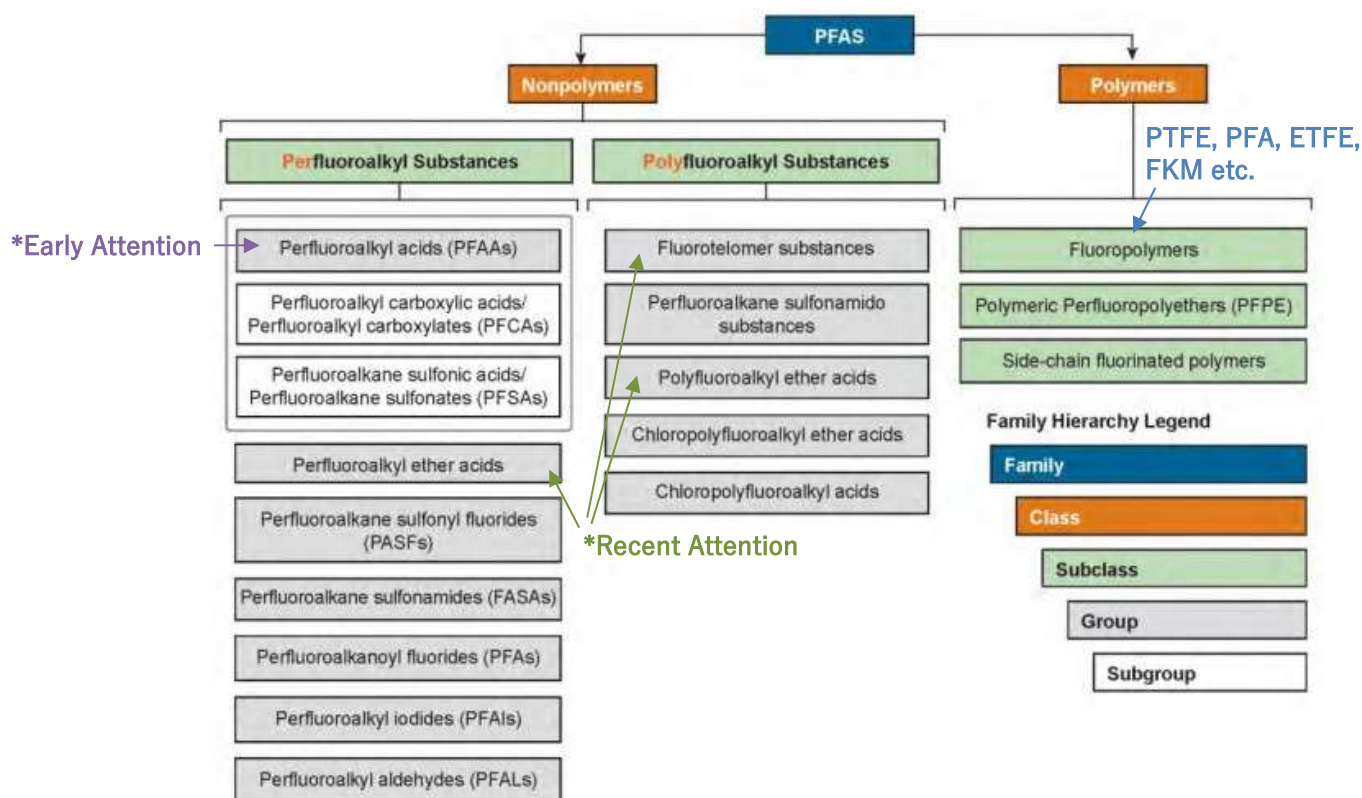
1. Fluoropolymers in PFAS subcategory (substance)

Regarding the negative impact of PFAS on the environment, as shown Fig. 1, PFOS (Perfluorooctane sulfonic acid) and PFOA (Perfluorooctanoic acid) were initially focused. Early concerns have been also raised about non-C8 perfluoroalkane sulfonic acids (PFSAs) and perfluoroalkyl carboxylic acids (PFCAs). These substances can be classified as perfluoroalkyl acids (PFAAs) that are water-soluble. Some of PFAAs have already been regulated due to the bioaccumulation and toxicity of each substance. Fig. 2 shows the PFAS family as an example of PFAS subcategory (substances).



Sources: Interstate Technology & Regulatory Council (ITRC). 2022. *PFAS Technical and Regulatory Guidance*. P.37 Fig. 2-16

Fig. 1 Relation between fluoropolymers and emerging awareness on PFAS occurrence in the environment



Sources: Interstate Technology & Regulatory Council (ITRC). 2022. *PFAS Technical and Regulatory Guidance*. P.20 Fig. 2-3

Fig. 2 the PFAS family

Next, fluorotelomers and perfluoroalkyl ether acids like higher-molecular-weight polyfluoroalkyl substances have recently been raised as potential PFAAs due to their own degradability. Fig. 3 of Attachment 1 shows PFAS family tree.

On the other hand, fluoropolymers are classified as one type of PFAS according to international definition, but unlike other polyfluoroalkyl substances such as fluorotelomers, they belong to a class of polymers that are highly polymerized over 100,000 Da (Dalton: unified atomic mass unit) , and have extremely high stability (persistence). Attached Fig. 3 indicates the potentiality of decomposition into PFAA precursors reported by Buck et al. (2011) for each PFAS subcategory, but there is no indication of the potentiality for the fluoropolymers subclass.

Fluoropolymers are thermally, chemically, photochemically, hydrolytically, oxidatively and biologically stable, barely soluble in water, immobile, insoluble (Water, Octanol, etc.) and too large to migrate to cell membranes. Therefore, they are not incorporated into the body and are considered low concern from a human and environmental health perspective.

2. Exposure to fluoropolymers in workplace environment

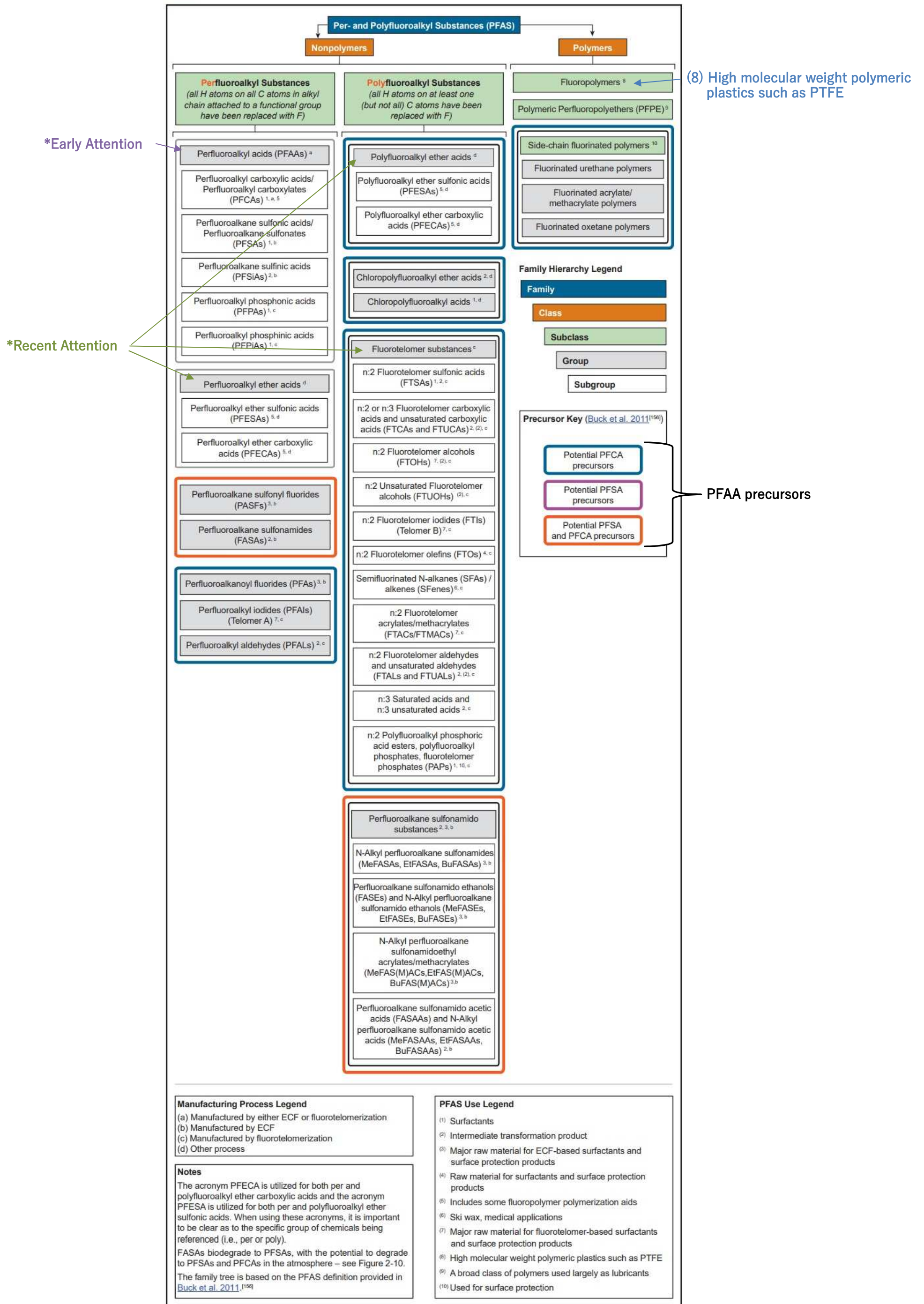
For human inhalation, following occupational exposure to degradation products of fluoropolymer PTFE (e.g. pyrolysis products) or particles (e.g. spray application), severe toxic effects are reported in section 1.1.4.9 “Effects on human health” in the Annex XV report. However, the toxic lung effect is matter of risk assessment in the working environment. Its countermeasures have openly been made known in the fluoropolymer handling guides issued by industry trade associations in major countries since the 1970s*2,3 and the effect on workers have been under control.

*2 Plastics Europe. June, 2021. *Guide for the safe handling of fluoropolymer resins*:

<https://fluoropolymers.plasticseurope.org/index.php/fluoropolymers/irreplaceable-uses-1/reports-policy-documents/tfe-safe-handling-guide>

*3 Japan Fluoropolymers Industry Association (JFIA). February, 2021. *Fluoropolymer handling manual*:

<http://www.jfia.gr.jp/handling.html>



Sources: Interstate Technology & Regulatory Council (ITRC). 2022. *PFAS Technical and Regulatory Guidance*. P. 21, Fig. 2-4.

Fig.3 PFAS family tree