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# Concerns about PFASs: EU and international context

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# What are PFASs?

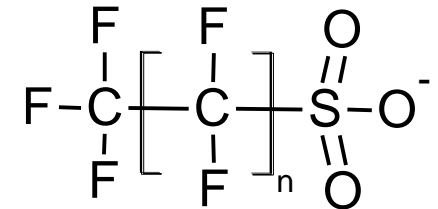
PFASs - Per- and polyfluoroalkyl substances

**Fully or partly fluorinated carbon chain connected to a functional group**

**Perfluoroalkyl sulfonic acids (PFSAs)**

long chain  $\geq 6$  fully fluorinated C-atoms, e.g. PFOS

short chain  $< 6$  fully fluorinated C-atoms, e.g. PFBS



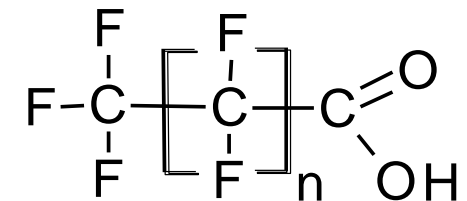
**Perfluoroalkyl carboxylic acids (PFCAs), e.g. PFOA**

long-chain  $\geq 7$  fully fluorinated C-atoms, e.g. PFOA

short-chain  $< 7$  fully fluorinated C-atoms, e.g. PFBA, PFHxA

**Precursors of PFSAs and PFCAs, e.g.**

fluorotelomer alcohols (FTOHs), e.g. 8:2 FTOH



**Fluorinated polymers: Polymers with fluorinated side-chains**

**Fluoropolymers: Polymers with fluorinated backbone**

# Concerns of PFAS

Long-chain PFAS (PFOA, C9-C14 PFCAs and their salts): included in the Candidate List/restricted e.g. because of:

- Extreme persistence
- Bioaccumulation
- Toxicity for reproduction

Short-chain PFAS: High contamination potential of food, surface & ground water and drinking water sources

- Mobility in the environmental compartments
- No efficient techniques available for removal from sewage, drinking water and contaminated sites due to low adsorption potential;
- Accumulation in (edible) plants; bioaccumulation potential; protein binding potential
- Found in humans and in the environment despite of limited volumes
- Long-range transport potential – wide geographical scale

PFASs also result from degradation of precursors (side-chain fluorinated polymers and fluorotelomers)

# Regulatory activities on PFAS

Subgroup	PFASs group (includes precursors where relevant)	Stockholm Convention	CLH/ SVHC	REACH Restriction
Long-chain PFCAs	PFOA	On-going	√ / √	√
	PFNA		√ / √	On-going
	PFDA		√ / √	On-going
	C <sub>11</sub> -C <sub>14</sub> -PFCAs		- / √	On-going
	PFHxS	On-going	- / √	On-going
	PFHpA (C <sub>7</sub> -PFCA)			
Short-chain PFCAs	PFHxA (C <sub>6</sub> -PFCA)		- / On-going	On-going
	PFBA (C <sub>4</sub> -PFCA)		On-going / -	
Short-chain PFSAs	PFBS (C <sub>4</sub> -PFSAs)		- / On-going	
Perfluoroether carboxylic acids (PFCEAs)	ADONA HFPOA-DA (GenX) 2 other related subst.		- / On-going	
Perfluoropolyethers (PFPEs)	TFEE-5			

# PFOA and Stockholm Convention

- Listing in Annex A to be discussed at the upcoming COP
- Recommended derogations more stringent than REACH restriction
- Encouraging Parties not to replace fire-fighting foam that contains PFOA with short-chain PFASs due to their persistency and mobility, potential negative environmental, human health and socioeconomic impacts

## Actions at EU level

- Member States: asking to look at PFAS as a group and raising concerns on PFAS uses; use different regulatory instruments
- COM + ECHA: launched a study to look at the use of all PFAS and non-fluorinated alternatives in fire-fighting foams
  - Hazard and emissions of all PFASs and alternatives
  - Costs of contamination of soil and water
  - SEA and AoA: identify specific, critical uses where fluorine-based FFF are needed
  - Potential basis for a restriction request to ECHA
  - Could be followed by a study targeting use in textiles

# Caution with PFAS and related substances

## When selecting alternatives

- avoid the restricted substances (e.g. PFOA) and soon to be restricted (e.g. C9-14 PFCAs)
- consider with high caution the substances being considered for restriction/SVHC identification: C4-C6 PFCAs (e.g. PFHxA and precursors) and PFHxS and precursors
- avoid the substances which can degrade into the above ones
- avoid alternatives that are under regulatory scrutiny (i.e. siloxanes)

## Are PFASs always needed?

- Providing high performance for both water and oil repellence to textiles is technically challenging
- Most often cited alternatives to C8 PFAS are also fluorinated substances which can potentially have human health or environmental concerns
- However, for most applications of textiles such high water & oil repellence is not absolutely necessary.
- Need for raising awareness among consumers regarding the issues linked with these substances, aiming at more informed purchase choices



# Are PFASs always needed?

- To limit the emissions of PFASs of concern, their use should normally be limited to the applications where their technical performances are unique and critical
- For the other applications, safer alternatives should be used, focusing on the most important feature to confer to the end-product (e.g. water or oil repellence)

# Thank you

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