PFAS restriction proposal in the EU
- Main provisions targeting fluorinated refrigerants

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Restriction proposal - content

- **REACH** = Registration, Evaluation, Authorisation and restriction of Chemicals

- Restriction proposal:
  - Chemical identity
  - Hazards, risks, effects
  - Applications
  - Availability of alternatives
  - Socio-economic analysis – impact assessment
  - Draft restriction entry
Preparation

May – July 2020
Call for evidence

July 2021 – Oct 2021
2nd stakeholder consultation

Oct 2021 – Jan 2023
Drafting of proposal

Stakeholder interviews, literature search, meetings

Jan 2020
First meeting

13 January 2023
Submission of proposal

7 February 2023
Publication of proposal
Restriction process – next steps

- Public Consultation, 22 March – 25 September 2023

- ECHA’s scientific committees:
  - Committee for Risk Assessment (RAC)
  - Committee for Socio-Economic Analysis (SEAC)

- Decision by the Commission together with the member states, expected 2025/26
<Forever chemicals>

- All PFASs in scope of this restriction proposal are either persistent themselves or degrade to other persistent PFASs
- Persistence due to strength of the carbon-fluorine bond
- PFASs remain in environment for decades to centuries
- Continued use leads to ever increasing environmental concentrations
Human health effects

- Varies with PFAS chemical structure
- Most common effects →

Studies have shown that PFAS have contaminated rainwater, drinking water and groundwater.

Can also be found in most people’s blood and is linked to elevated cholesterol levels.

Some PFAS can damage the liver.

Studies show that some PFAS contribute to the development of kidney and testicular cancer.

Tests indicate some PFAS weaken the immune system.

Figure: ECHA
Non-threshold substances

- PBT and vPvB substances and similar usually treated as non-threshold substances
- Continued use and emissions $\rightarrow$ increasing environmental concentrations
- Increasing risk of exposure
- Often to a mixture of PFAS
- We do not know potential effects arising from long-term exposure
- High likelihood that adverse effects will occur at some point
- Classical risk assessment not appropriate
- Rather, releases are used as a proxy for risk
- To minimize the likelihood of adverse effects in the future, all releases should be minimized
Sectors/uses of PFASs

- Industrial processes
- Firefighting foams
- TULAC
- Food contact materials (incl. packaging)
- Metal plating/metal products
- Consumer mixtures
- Ski wax
- Transport

- Applications of fluorinated gases
- Electronics and semiconductors
- Energy sector
- Construction products
- Lubricants
- Petroleum and mining
- Medical devices
- Cosmetics
- Other uses
Fluorinated gases – atmospheric degradation and concerns

- Global warming
- Degradation
- TFA ++
- Persistent substances in the environment

F-gas regulation

REACH
Trifluoroacetic acid - TFA

- Harmonized Classification: H412 - harmful to aquatic life with long lasting effects (Aquatic Chronic 3)
- Microalgae *Raphidocelis subcapitata* most sensitive organism in freshwater
- Persistent in the environment – mobile in water → vPvM
- Sources to TFA in the environment:
  - Deep-sea vents in the oceans (200 ng/L)
  - Industrial uses (100 – 1000 t/y in the EU)
  - Degradation of fluorinated gases (e.g. refrigerants)
  - Degradation of other fluorinated substances
Primary concern with TFA relates to increasing levels of TFA in freshwater and the terrestrial environment.

TFA in these compartments is from anthropogenic sources.
Restriction Options (RO’s) assessed

**RO1**
- Full ban of all uses
  - Transition period: 18 months

**RO2**
- Ban with use-specific derogations
  - Transition period: 18 months
  - Duration of derogation:
    - 5 years (based on set criteria relating to alternatives)
    - 12 years (based on set criteria relating to alternatives)
    - Time-unlimited derogations (specifically justified)
Derogations – fluorinated gases

- Full list of derogations: Annex XV report – Annex XVII entry PFASs, page 24

- Examples:
  - 5i. maintenance and refilling of existing HVACR equipment put on the market before [18 months after EiF] and for which no drop-in alternative exist until 13.5 years after EiF;
  - 5j. refrigerants in HVACR-equipment in buildings where national safety standards and building codes prohibit the use of alternatives;
  - 5p. refrigerants in mobile air conditioning-systems in combustion engine vehicles with mechanical compressors until 6.5 years after EiF;
Summary and next steps

- Restriction for PFAS, including fluorinated gases, proposed
- For fluorinated gases main concern is persistent degradation products (e.g. TFA) that are increasing in freshwater and the terrestrial environment
- Public Consultation 22 March – 25 September 2023
Thank you for listening.