

Tackling PFAS pollution

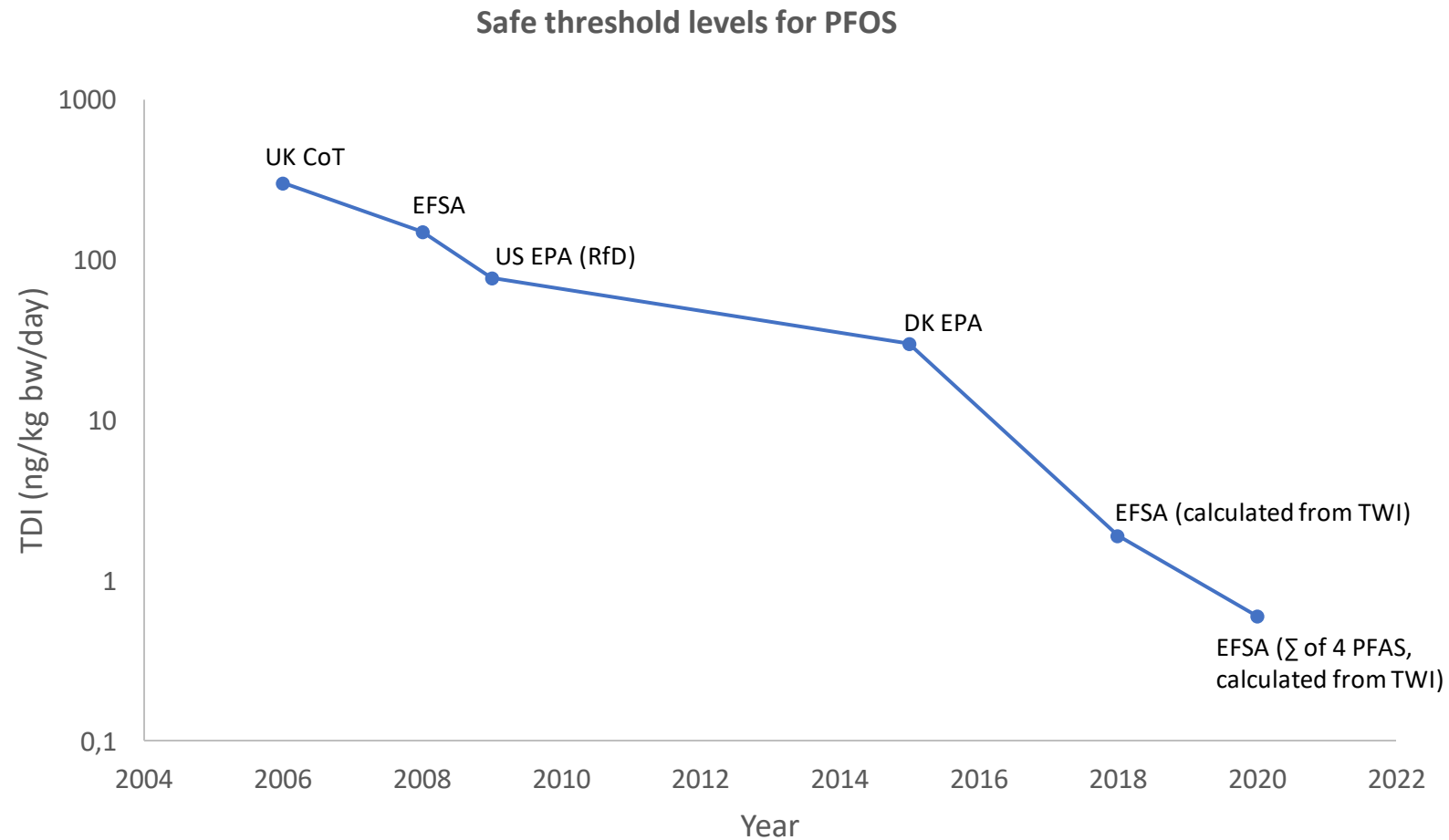
Emission control: minimization and monitoring challenges

Magnus Løfstedt / 1st of February 2024

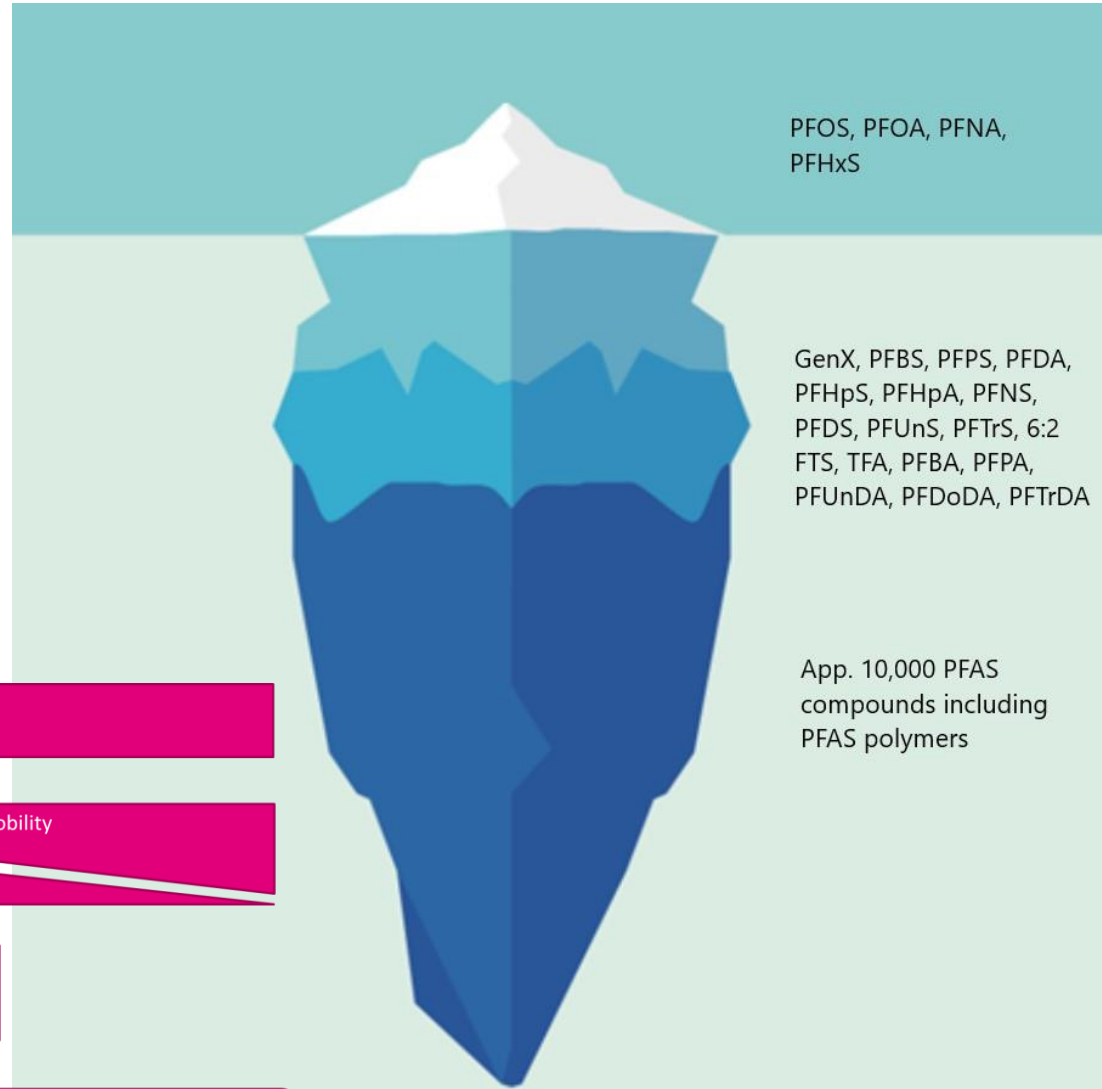
European Environment Agency

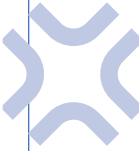


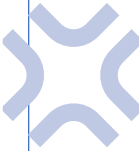
PFOS impacts on human health – increased knowledge over time

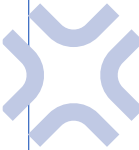


For PFAS as a group we have limited knowledge



 The known knowns

 The known unknowns

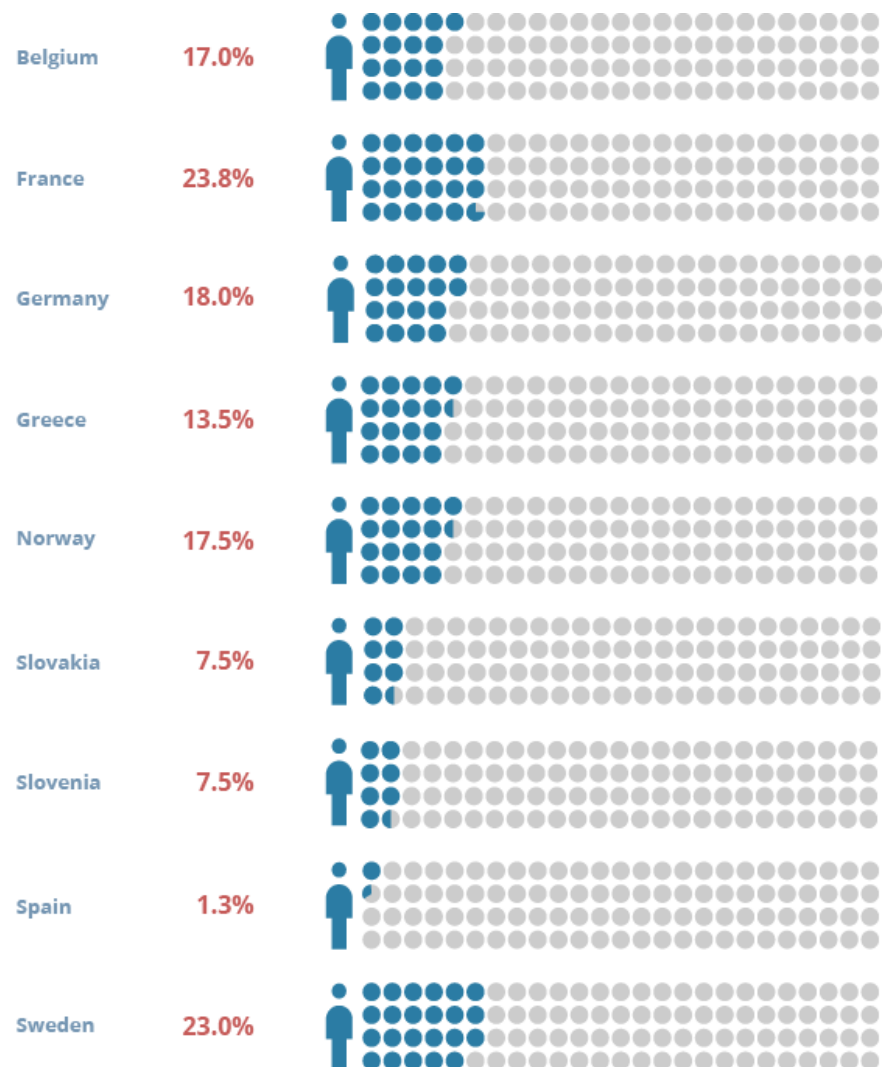
 The unknown unknowns



Human exposure to PFOS, PFOA, PFNA and PFHxS



science and policy
for a healthy future



Human Biomonitoring Initiative in Europe (HBM4EU)

- 2017–2022
- Co-funded under Horizon 2020

- Overall exceedance of health-based guidance values: 14.3 %

- Decreasing trend for PFOS and PFOA concentrations

- Association of higher maternal PFAS levels with increased propensity for infections in children

Source: Blood levels in European teenagers above the health-based guidance value (2014 - 2021) - HBM4EU

European Environment Agency



What the EU is doing – Chemicals Strategy for Sustainability

Per- and polyfluoroalkyl substances (PFAS) require special attention, considering the **large number of cases of contamination of soil and water** - including drinking water - in the EU and globally, the number of people affected with a full spectrum of **illnesses and the related societal and economic costs**. That is why the Commission proposes a comprehensive set of actions to address the use of and contamination with PFAS. Those aim to ensure, in particular, that **the use of PFAS is phased out in the EU, unless it is proven essential for society**.



PFAS⁶²

The Commission will:

- ban **all PFAS** as a group in **fire-fighting foams** as well as in **other uses**, allowing their use only where they are essential for society;
- address PFAS with a **group approach**, under relevant legislation on water, sustainable products, food, industrial emissions, and waste;
- address PFAS **concerns on a global scale** through the relevant international fora⁶³ and in bilateral policy dialogues with third countries;
- establish an EU-wide approach and provide financial support under research and innovation programmes to identify and develop **innovative methodologies for remediating PFAS contamination** in the environment and in products;
- provide research and innovation funding for safe **innovations to substitute PFAS** under Horizon Europe.

What the EU is doing – examples of activities



The toxic-free hierarchy

Safe and sustainable chemicals

Minimise and control

Eliminate and remediate



- Research and innovation funding for innovations to substitute PFAS
- Developing Safe and Sustainable by Design approaches
- New CLP hazard criteria for PMT

- REACH restriction proposals (PFAS in firefighting foams & universal PFAS restriction)
- (Proposed) amendments of the Water Framework Directive, Drinking Water Directive and Industrial Emission Directive

- Financial support under research and innovation programmes to identify and develop innovative methodologies for remediating PFAS contamination



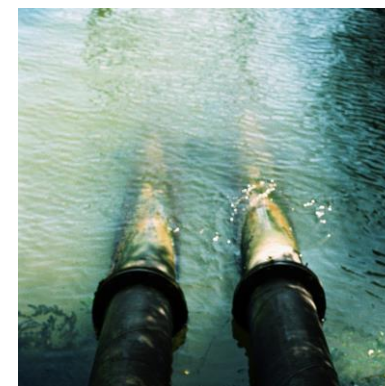
Amended legislation at EU level - examples

Industrial Emission Directive (revision agreed in 2023)

- Revised Directive has a stronger focus on industrial transformation and innovation.
- New requirements include compulsory EMS with **chemicals inventory** (which should have a focus on alternatives to SVHC and other hazardous substances) and a more prominent role of ECHA in the BREF process, which will allow highlighting hazardous chemicals and processes (including involving PFAS) in each IED sector and possibly **dedicated BAT and BAT-associated emission limits**.

Industrial Emissions Portal Regulation (agreed in 2023)

- The portal is a revamp of the European Pollutant Releases and Transfers Register (E-PRTR), an inventory of environmental information from large industrial installations (mostly in the scope of the IED, but not only). Agreed, final publication expected for March-April 2024.
- 2 new pollutants in scope: "**Perfluorooctanoic acid (PFOA) and its salts**" and "**Perfluorohexane-1-sulphonic acid (PFHxS) and its salts**" (air, water, or land releases above 1kg per year).
- Annex II will be updated by the end of 2025 – taking other legislations into account – both on substances and thresholds.



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Amended legislation at EU level - examples

Water Framework Directive (proposal from October 2022, not yet adopted)

- Water quality standard of **4.4 ng/L for a group of 24 PFAS** in surface and groundwater (based on the relative potency factor compared to PFOA)
- Biota standard of **77 ng/kg ww** for a group of 24 PFAS in surface and groundwater (based on the relative potency factor compared to PFOA)



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Drinking Water Directive (adopted in 2020, limit values applicable from 2026)

- Limit value of **100 ng/L** for the **sum of 20 PFAS** in drinking water (not yet aligned with newest EFSA assessment)
- Limit value of **500 ng/L** for **total PFAS** in drinking water (analytical method for total PFAS not yet available)

Why is monitoring important?

Monitoring is essential to:

- Check compliance with regulatory requirements
- Track the effectiveness of regulatory measures
- Identify hot spots
- Evaluate the state of the environment and exposure to humans

Challenges for analytical methods:

- Sensitivity (LOD, LOQ) – compared to very low limit values
- Substance coverage (number of PFAS compounds)
- Total PFAS method
- Matrix coverage (water, soil, air, articles, sewage sludge, air, etc.)
- Cost



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Agenda

Policy on emissions of hazardous substances to water and air

Ministry of Infrastructure and Water Management, The Netherlands: Sam van de Snepscheut – Senior policy officer Chemical Safety; Paul Bakker – Senior policy officer Water Quality

PFAS monitoring in air: method development and first insights

Flemish Institute of Technological Research (VITO): Jelle Hofman

Methodological and analytical challenges for PFAS monitoring in environmental media

Flemish Institute of Technological Research (VITO): Stefan Voorspoels & Griet Jacobs (water)

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