PFAS – a global contamination case and how this is impacting product compliance and regulatory development
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What are PFAS? Where are PFAS used in consumer products? Why are PFAS a global issue?

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<th>What</th>
<th>Where</th>
<th>Why</th>
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<td>Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) are synthetic chemicals defined as &quot;fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom (without any H/Cl/Br/I atom attached to it), i.e., with a few noted exceptions, any chemical with at least a perfluorinated methyl group (–CF3) or a perfluorinated methylene group (–CF2–) is a PFAS.&quot;</td>
<td>Examples of major historical and current uses of polymeric per- and polyfluoroalkyl substances (PFASs)*</td>
<td>These substances are <strong>persistent</strong> and distributed ubiquitously in the global environment, biota and humans, and in remote areas (i.e. they have high long-range transport potential); they are <strong>bioaccumulative</strong> and can cause various adverse effects in wildlife and humans and have been detected in wildlife, as well as in the blood of neonates.</td>
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<td>*Automotive, Aviation, aerospace &amp; defense, Cable &amp; wiring, Construction, Electronics, Fire-fighting, Household products, Paper and packaging, Semiconductors, Textiles, leather and Apparel</td>
<td></td>
<td>• These findings are of particular concern in view of the known behavior of these compounds, their <strong>persistency</strong>, the <strong>toxicological profile</strong> of certain PFASs, and their potential to accumulate in the body and in food chains.</td>
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<td>• As a result, PFASs are monitored worldwide, both in the environment and in organisms.</td>
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Source: [https://www.oecd.org/chemicalsafety/portal-perfluorinated-chemicals/aboutpfass/](https://www.oecd.org/chemicalsafety/portal-perfluorinated-chemicals/aboutpfass/)
How PFAS are and will be restricted?

**PFAS legislation**

**Products Specific vs Generic**
- Shall not be intentionally used
- Specific Substances vs Group of Substances

**Intentional use vs Contamination**
- 25 ppb for any PFAS
- 250 ppb for the sum of PFAS
- 50 ppm total fluorine
- 100 ppm total organic fluorine

**Not harmonized globally**
- Fast evolving

**USA**
- 25 states have adopted various policies specific to PFAS
- 25 states with 197 bills specific to PFAS, some of which may impact consumer

**EU, HK, Canada, Thailand…**

**Fabric treatment**
- Mixtures and articles
- Carpets and rugs
- Cookware

**USA**
- Proposed restriction for PFAS
- Restrictions for PFOA, PFOS; PFCA, PFHxA
How to mitigate the risk of non-compliance with chemical management?

**Design Phase**
- Purchasing choices of raw materials and chemical products - PRSL and MRSL compliance
- Regulatory assessment for compliance

**Manufacturing-Input**
- Chemical products
- Raw Materials
- Input water

**Manufacturing-Process**
- Usage of raw materials, chemical products, input water
- Cross-contamination
- Wastewater

**Manufacturing-Output**
- Finished product

**Internal and external alignment - collaboration**
- Is my purchasing department asking for PRSL and MRSL compliance?
- Are the suppliers aware of why and how they can implement chemical management?
- Are the suppliers trained?

**Cross-contamination**
- Manufacturing process checking: any other product manufactured?

**Chemicals**
- SDS Review
- MRSL compliance and testing

**Raw Materials**
- Testing against PRSL
- Total Fluorine
- PFAS Targeted Analysis

**Input Water**
- Analysis for PFAS contamination
Questions