

PFAS: Update of EN 17681-1:2025 for the analysis of textiles

TÜV Rheinland LGA Products – Information

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Per- and polyfluoroalkyl substances (PFAS) are increasingly in the media and on the minds of consumers.

Restrictions are currently in place for different classes of PFAS in articles and mixtures, for example in Europe under REACH or the POP Regulation.

The required test method was developed by the working committee "Textile chemical test methods and fibre separation", EN 17681-1/-2:2022. This method has also been used for the determination of PFAS in plastics and coatings since then.

The method extracts with methanol, determination by LC-MS/MS or GC-MS-EI/CI.

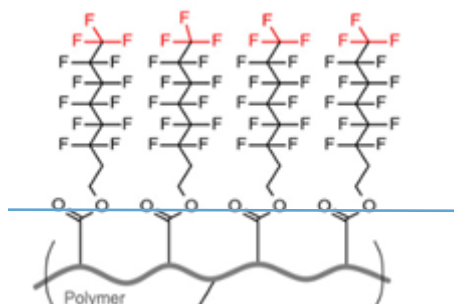
As this extraction does not cover the compounds 'related to PFAS', as stated in the legislation, the test method had to be revised.

It is intended for textiles and leather, but matrices are likely to be similar to footwear and have been used as standard for several years.

A draft of the prEN 17681-1: 2023 was published in 2023. Since then, this method has been used by many laboratories to prove conformity with the above-mentioned legal regulations. The final version of the EN 17681-1: 2025 has now been published. Therefore, the results achieved according to the previous standard should be evaluated accordingly.

WHAT ARE THE CHANGES TO THE NEW METHOD?

ECHA confirmed that polymeric PFAS are part of the current PFAS restriction. As the 2022 version of the method didn't cover side-chain fluorinated polymeric PFAS, a revision of the standard became necessary to cover polymeric PFAS. EN 17681-1/-2: 2022 mainly extracts free or loosely bound PFAS, which is reflected in the low detection levels and therefore leaves gaps when it comes to demonstrating compliance with regulatory requirements.



The upper part is not split of by methanol (old method), only sodium hydroxide does (new method).

WHICH PRODUCTS ARE IMPACTED?

Textiles and footwear materials with Durable Water Repellent (DWR) or Stain Repellent Coating containing fluorine as a structural component. The newly developed method uses alkaline hydrolysis to break the covalent bonds between the polymer backbone and the fluorinated side chains, resulting in a higher concentration of PFAS and thus better compliance with regulatory requirements. Of course, there will be no increased concentration of PFAS if the materials have been treated with non-fluorinated products.

OUR RECOMMENDATION

Analytical testing with the new method is proposed for products containing a DWR or stain-repellent coating with an unknown fluorine content to assess the impact. In addition to analytical testing, it is also suggested that the supply chain be monitored for the use of chemicals. A review and further development can be carried out, for example, on the basis of chemical and/or waste water management audits of production sites (textile or electroplating industry), which are additional measures to eliminate PFAS from production.

APPLICATIONS IN TEXTILES, FOOTWEAR AND RELATED ACCESSORIES

- Water, oil and stain repellent articles and materials may contain PFAS. These properties are often not directly advertised.
- Textiles: outdoor textiles, high quality textiles, workwear, military uniforms, body armour, surgical gowns/ cloths, interior linings, medical textiles, bandages, plasters, tapes
- Footwear: Outdoor and sports footwear, military boots, etc.
- Other articles: Handbag and linings, awnings, umbrellas, luggage, school bags, tarpaulins, ironing board covers, car seats, automotive textiles, filters

TESTING PACKAGES

PFAS Sub-Groups	Legislation	Package 1	Package 2	Package 3	Package 4
		166,- Euro	228,- Euro	145,- Euro	207,- Euro
PFOA and related compounds	POP Annex I Part A	•	Package 1		
PFOS and its derivatives	POP Annex I Part A	•			
PFHxS and related compounds	POP Annex I Part A	•			
C9-C14 PFCA and related compounds	REACH Annex XVII	•			
PFHxA and related compounds	REACH Annex XVII	•			
Other PFAS (C4F to C16F)	Restriction Proposal to EU REACH		•		
Total Fluorine Content	U.S. State law			•	(○)
Total Organic Fluorine Content	U.S. State law				•

Unless otherwise specified by the client, the new test method will be used.

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