

# Fibre Packaging Europe

European coalition for renewable, circular and sustainable paper and board packaging.



## Fibre Packaging Europe – draft document

7 October 2025

### Disclaimer

This guide shall serve as summary of regulatory requirements resulting from the PFAS restriction in Regulation 2025/40 on packaging and packaging waste (PPWR). Additionally, it shall provide advice on how to achieve compliance with the requirements to the best of abilities. Please be aware that this document should not be considered legally binding, exhaustive, or as a definitive standard.

### Legal requirements at a glance

The [PPWR](#) covers requirements for substances in packaging in article 5. Paragraph 5 provides the details of the restriction concerning PFAS:

*5. From 12 August 2026, food-contact packaging shall not be placed on the market if it contains per- and polyfluorinated alkyl substances (PFAS) in a concentration equal to or above the following limit values to the extent that the placing on the market of packaging containing such a concentration of PFAS is not prohibited pursuant to another Union legal act:*

- a) *25 ppb for any PFAS as measured with targeted PFAS analysis (polymeric PFAS excluded from quantification);*
- b) *250 ppb for the sum of PFAS measured as the sum of targeted PFAS analysis, where applicable with prior degradation of precursors (polymeric PFAS excluded from quantification); and*
- c) *50 ppm for PFASs (including polymeric PFAS); if total fluorine exceeds 50 mg/kg the manufacturer, importer or downstream user as defined respectively in Article 3, points (9), (11) and (13) of Regulation (EC) No 1907/2006 shall, upon request, provide to the manufacturer or the importer as defined respectively in Article 3(1), points (13) and (17), of this Regulation proof of the quantity of fluorine measured as content of either PFAS or non-PFAS in order for them to draw up the technical documentation as referred to in Annex VII to this Regulation.*

*'PFAS' means any substance that contains at least one fully fluorinated methyl (CF<sub>3</sub>-) or methylene (-CF<sub>2</sub>-) carbon atom (without any H/Cl/Br/I attached to it), except substances that only contain the following structural elements: CF<sub>3</sub>-X or X-CF<sub>2</sub>-X', where X = -OR or -NRR' and X' = methyl (-CH<sub>3</sub>), methylene (-CH<sub>2</sub>-), an aromatic group, a carbonyl group (-C(O)-), -OR'', -SR'' or -NR''R'''; and where R/R'/R''/R''' is a hydrogen (-H), methyl (-CH<sub>3</sub>), methylene (-CH<sub>2</sub>-), an aromatic group or a carbonyl group (-C(O)-).*

*By 12 August 2030, the Commission shall carry out an evaluation to assess the need to amend or repeal this paragraph in order to avoid overlaps with restrictions or prohibitions on the use of PFAS laid down in accordance with Regulations (EC) No 1935/2004, (EC) No 1907/2006, or (EU) 2019/1021.*

**Scope:** Art.5(5) applies to food-contact packaging, i.e. any packaging that can be reasonably expected to get into contact with food.

**Duty holder and timing:** The provision starts applying from 12 August 2026. This means that from 12 August 2026 onwards, the economic operator cannot place on the market any food-contact packaging which contains PFAS above the limits set in Art.5(5), regardless of the time of actual production of the packaging or packaging material by a company up the supply chain.

**PFAS definition:** the legal text makes no distinction between unintentionally present and intentionally added PFAS. Therefore, both are under the scope of the PPWR restriction, and the duty holder must ensure no PFAS is above the limit, regardless of the origin.

## **Testing Strategy**

To demonstrate compliance with the PFAS restriction set out in the Packaging and Packaging Waste Regulation (PPWR), a two-step approach can be considered both sufficient and proportionate to the legal requirements outlined in the regulation.

**Step 1**, corresponds to point (c) of Article 5(5), which establishes a 50 ppm threshold for total fluorine (if exceeded, the PFAS and non-PFAS part have to be proven as stated in point (c)) and a 50 ppm limit for PFAS, including polymeric PFAS. This means that the product may contain more than 50 ppm fluorine, however, the PFAS part needs to be below 50 ppm, otherwise the product is deemed non-compliant.

In Step 1, the company performs an analysis of Total Fluorine (TF) in the packaging material. If the TF content is lower than 50 ppm, this would automatically mean that total organic fluorine and PFAS, should there be any, will also be below 50 ppm. Hence, the material can be deemed to comply with Article 5(5).

**Step 2:** Should the TF be above the 50 ppm threshold, the company performs a Total Inorganic Fluorine (TIF) or Total Organic Fluorine (TOF) measurement to detect the inorganic or organic part respectively. The total organic fluorine, which would include the PFAS, can also be obtained by subtracting TIF from TF.

Since the 50 ppm limit is valid for PFAS, which are organic fluorine, the TOF content is of particular interest. If the TOF content is lower than 50 ppm, the material can be deemed to comply with Article 5(5).

Should the TOF be above 50 ppm, the material does not comply with the requirement set out in point (c) of Article 5(5). Hence, the material is deemed non-compliant.

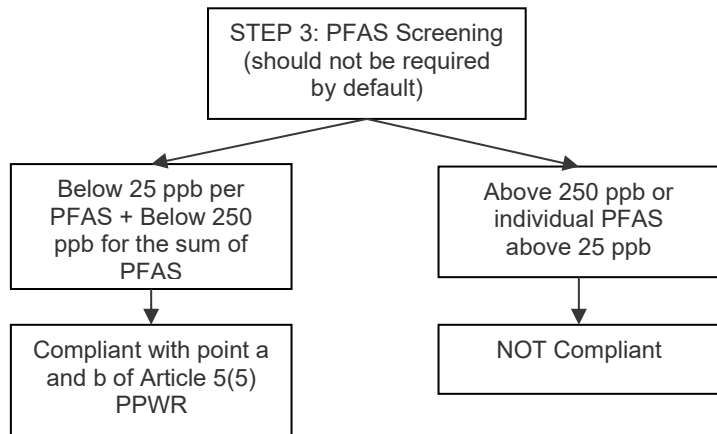
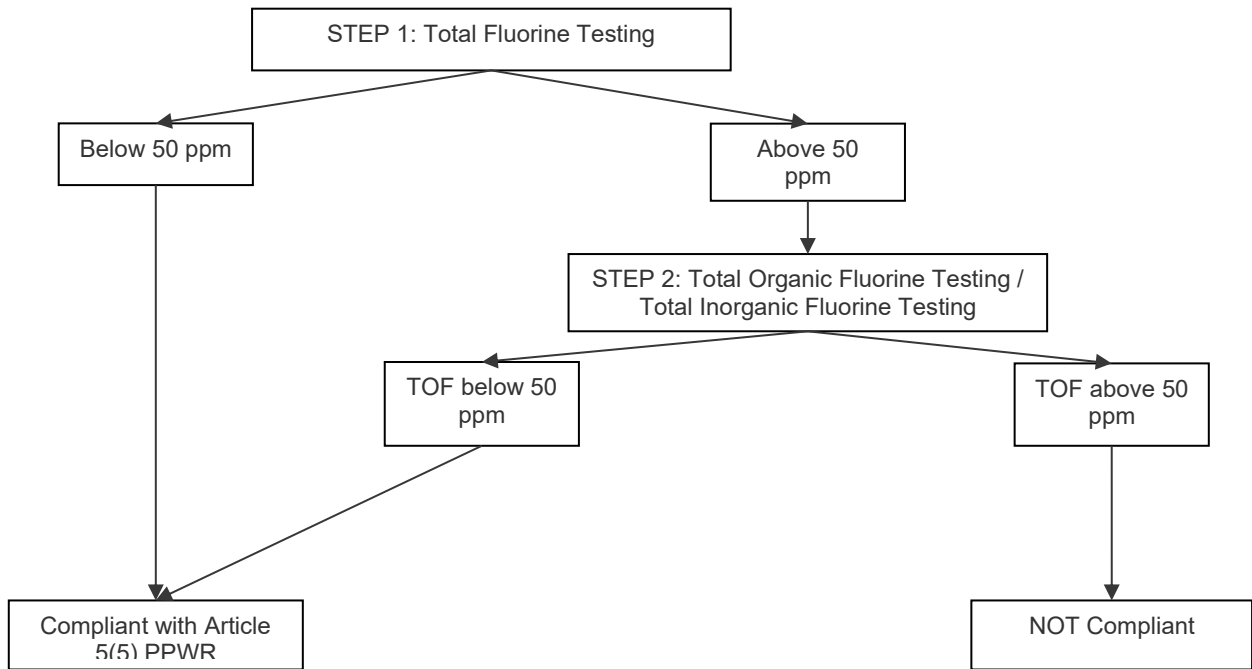
Step 3 concerns points (a) and (b) of Article 5(5). However, this PFAS screening should not be required by default as it does not provide additional relevant information that would not already be identified by the first two steps. Testing only TF/TOF for compliance with Article 5(5) is sufficient to demonstrate the safety of the material.

**Step 3**, corresponds to points (a) and (b) of Article 5(5), which define limits of 25 ppb for individual PFAS and 250 ppb for the sum of PFAS (excluding polymeric PFAS).

To fulfil the requirements of points (a) and (b), it is not feasible to test for all known PFAS substances as more than 10,000 have been identified. Therefore, this guide recommends a **targeted testing approach** that focuses on a **subset of PFAS**, namely those that are regulated by the POPs and REACH regulation and listed in the Drinking Water Directive (listed below). Additionally, since currently there are still PFAS listed in two national positive lists, these can also be monitored. This pragmatic selection ensures that substances of greatest relevance, sensitivity and regulatory concern are adequately covered while keeping the testing scientifically and operationally manageable. The threshold of point (b) for the sum of PFAS refers to the sum of this subset of PFAS.

If the targeted PFAS analysis results are **below the respective thresholds**, the material is deemed to comply with points (a) and (b). This outcome demonstrates that the fluorine detected does not arise from regulated PFAS.

If the PFAS levels are **above the limits**, the material is considered non-compliant and cannot be placed on the market.



## Testing methods

### Step 1 and 2: TF / TOF / TIF - point (c)

We note that the European Committee for Standardization (CEN) is currently working on harmonizing the measurement of fluorine for paper and board intended for food contact. Once the work of the technical working group CEN/TC 172/WG3 is concluded, we recommend using their standardized approach for measuring fluorine which as of now includes:

- Total Fluorine (TF) in paper or board is measured on the raw sample by hyphenated Combustion – Ion Exchange Chromatography (CIC).
- Total Inorganic Fluorine (TIF) in paper or board is measured by CIC on a sample whose organic matter has been burnt off. TIF measurement by CIC is then conducted on the remaining mineral matter.
- Total Organic Fluorine (TOF) can be obtained by subtracting TIF from TF, so that  $TOF = TF - TIF$ .

N.B.: Interlaboratory tests are currently in progress.

### Step 3: Targeted PFAS screening - points (a) and (b)

- Single substance analysis via liquid chromatography coupled with mass spectrometry (LC-MS/MS)
- HS-GC/MS or HPLC-MS
- LC-MS/MS

Step 3 recommends a targeted PFAS analysis in accordance with Articles (a) and (b), which define limits of 25 ppb for individual PFAS and 250 ppb for the sum of PFAS. However, this step should not be required by default.

To fulfil these requirements, it is not feasible to test for all known PFAS substances as more than 10,000 have been identified. Therefore, this guide recommends a targeted testing approach that focuses on a subset of PFAS, namely those that are regulated by the POPs and REACH regulation and listed in the Drinking Water Directive. This pragmatic selection ensures that substances of greatest relevance and regulatory concern are adequately covered while keeping the testing scientifically and operationally manageable:

Regulation (EU) 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants (POPs)	PFOS, PFOA, PFHxS
Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)	PFCA (Annex XVII, entry 68), including PFNA, PFDA, PFUnDA, PFDoDA, PFTrDA, PFTeDA
	PFHxA (Annex XVII, entry 79)
Directive (EU) 2020/2184 of the European Parliament and of the Council of 16 December 2020 on the quality of water intended for human consumption	PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFNA, PFDA, PFUnDA, PFDoDA, PFTrDA
	PFBS, PFPeS, PFHxS, PFHpS, PFOS, PFNS, PFDS, PFUnDS, PFDoDS, PFTrDS

In total 21 PFAS to screen for (at least):

Perfluoroalkyl Carboxylic Acids	CAS number	Perfluoroalkyl Sulfonic Acids	CAS number
PFBA	[375-22-4]	PFBS	[375-73-5]
PFPeA	[2706-90-3]	PFPeS	[2706-91-4]
PFHxA	[307-24-4]	PFHxS	[355-46-4]
PFHpA	[375-85-9]	PFHpS	[375-92-8]
PFOA	[335-67-1]	PFOS	[1763-23-1]
PFNA	[375-95-1]	PFNS	[68259-12-1]
PFDA	[335-76-2]	PFDS	[335-77-3]
PFUnDA	[2058-94-8]	PFUnDS	[749786-16-1]

PFDODA	[307-55-1]	PFDODS	[79780-39-5]
PFTrDA	[72629-94-8]	PFTrDS	[791563-89-8]
PFTeDA	[376-06-7]		

At the same time, there are still PFAS that are currently authorized in national food contact recommendations or legislations. This should also be considered to monitor the phase out of PFAS.

German BfR recommendations XXXVI & XXXVI/2 – as of August 2025	<p>PFHxI-alkyl polymer (2-Propen-1-ol, compounds, reaction products with 1,1,1,2,2,3,3,4,4,5,5,6,6-tridecafluoro-6-iodohexane, dehydroiodinated, reaction products with epichlorohydrin-triethylenetetramine)</p> <p>TFOA (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl acrylate or 1H,1H,2H,2H-perfluorooctyl acrylate)</p> <p>(6:2 FTMAC / TFOMA) 3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl methacrylate</p> <p>6:2 FTOH (6:2 Fluorotelomer alcohol)</p> <p>Copolymer with 2-diethylaminoethylmethacrylate, 2,2'-ethylenedioxydiethyldimethacrylate, 2-hydroxyethylmethacrylate and 3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl methacrylate, acetate</p> <p>Copolymer with 2-diethylaminoethylmethacrylate, 2,2'-ethylenedioxydiethyldimethacrylate, 2-hydroxyethylmethacrylate and 3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl methacrylate, malate</p>
Dutch Warenwetregeling – as of June 2025	Diphosphoric acid, polymers with ethoxylated reduced Me esters of reduced polymerised oxidized tetrafluoroethylene

PFAS listed in REACH and POP regulations are commonly tested by laboratories. For other PFAS, standard methods may not exist as of today.

### Testing frequency

In case a company screens for PFAS for the first time, they should perform both steps in any case. Companies should do testing step by step as defined in the diagram described above.

The initial comprehensive testing (step 1 and 2) of finished products should take place before 12 August 2026.

Testing must be performed at a frequency which is based on a risk assessment and relates to the likelihood of the restriction being exceeded. This frequency will depend on a number of factors, e.g. type of raw material used, raw material variability, process variability, testing accuracy, or agreements between manufacturer and supplier. In certain cases, there may also be a need to align frequency with external factors such as customer requirements, change of suppliers and the Declarations of Compliance (DoC). Changes in materials, suppliers, or manufacturing processes may prompt a re-testing of the materials.

Once the initial frequency has been determined, the risk assessment which determined that frequency must be reviewed at least every 12 months. This may or may not result in the actual testing frequency being changed. This criterion may be managed through the risk analysis (HARA, HACCP...) of the plant.

### Documentation

The manufacturer should document the testing rationale and frequency in the technical documentation.

As part of the risk assessment, companies may also request documentation from their suppliers concerning the non-use of PFAS.

### About Fibre Packaging Europe

Fibre Packaging Europe is an informal packaging coalition of seven trade associations representing industries involved in forestry, pulp, paper, board and carton production and recycling from across Europe. Our joint mission is to provide renewable, circular and sustainable fibre-based packaging solutions to European citizens to achieve the European Green Deal objectives.

For more information, please contact [info.fpe@logos-pa.com](mailto:info.fpe@logos-pa.com)