

Sampling and analysis of PFAS in air and materials

Per- and polyfluoroalkylated substances (PFAS) are manufactured chemicals with a wide range of applications. As a result, they are found in ambient air, indoor air and materials that we are in contact with on a daily basis.

Detecting and measuring the more volatile, short-chain PFAS is an important part of understanding how and where they are being spread. Thermal desorption (TD) coupled to GC-MS provides a sensitive and easy way of monitoring PFAS in air and materials.

Analyte range

A number of volatile and semi-volatile PFAS species are compatible with TD-GC-MS analysis. These include:

- Perfluoroalkyl carboxylic acids
- Fluorotelomer alcohols (FTOHs)
- Fluorotelomer acrylates (FTAcrs)
- Fluorotelomer carboxylic acids (FTCAs)
- Fluorotelomer sulfonamides (FOSAs).

Sorbent tube and canister sampling

Compounds can be sampled onto sorbent tubes using a pump, or captured using a canister, before being analysed using TD-GC-MS. Even in low-concentration environments it is possible to qualify and quantitate PFAS using these approaches, thanks to the intrinsic preconcentrating effect of TD.

Markes International is the only instrument manufacturer to support *sorbent tube and canister analysis on the same system*. Markes' instrumentation and consumables have also been verified as PFAS-free in independent studies. This means that you can analyse the ultra-volatile products of incomplete PFAS destruction in canisters, while on the same analytical system you can monitor fluorotelomer alcohols at rural background sites using sorbent tubes.

For easy integration into your lab workflows, Markes' instruments are compatible with all popular GC-MS systems.



Markes' TD100-xr for automated PFAS analysis of up to 100 sorbent-tube samples.



Markes' UNITY-CIA Advantage-ULTRA-Kori-xr, allowing PFAS analysis of 100 sorbent tubes and 14 canisters, with capability for cryogen-free water management.



Sorbent tubes for PFAS sampling

Sampling for PFAS can be carried out using Markes' 'PFAS – extended volume' sorbent tubes (part number C3-AAXX-5426). These allow sample volumes of up to 500 L for volatile species, enabling analysts to reach low pg/m^3 method detection limits.

Alternatively, PFAS-optimised sorbent tubes are also available in glass.

Find out more about PFAS monitoring in Application Note 158 – Analysis of trace per- and polyfluorinated organic vapours in air using cryogen-free thermal desorption and gas chromatography–mass spectrometry.



Scan the QR code to download your free copy of Application Note 158.



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