



Chromatography consumables

# Protecting from PFAS – together, we can do it

Chromatography and consumables  
for routine testing

# Setting a new horizon for PFAS workflow solutions

The detection and quantification of known PFAS and the discovery of unknown PFAS has never been more important. Determining the best workflow for your PFAS analysis can be challenging. Optimal methods will vary depending on the matrix you are working with and goals of your analysis. There are strategies to help you with either targeted analysis of known PFAS compounds or the discovery of unknowns, from a variety of matrices.

Whether you need just a single item to complete an analysis or everything from sample preparation to chromatography and mass spectrometry to data analysis software, we have you covered. We offer solutions for problems at any step of your analytical process, no matter the size or scope of your PFAS project.



## Download application note

Learn about a reliable, sensitive method using a PFAS-safe sample preparation system and LC-MS/MS.



## Download application note

Read about a method for determining 24 PFAS compounds from ground, surface, and wastewaters using LC-MS/MS.



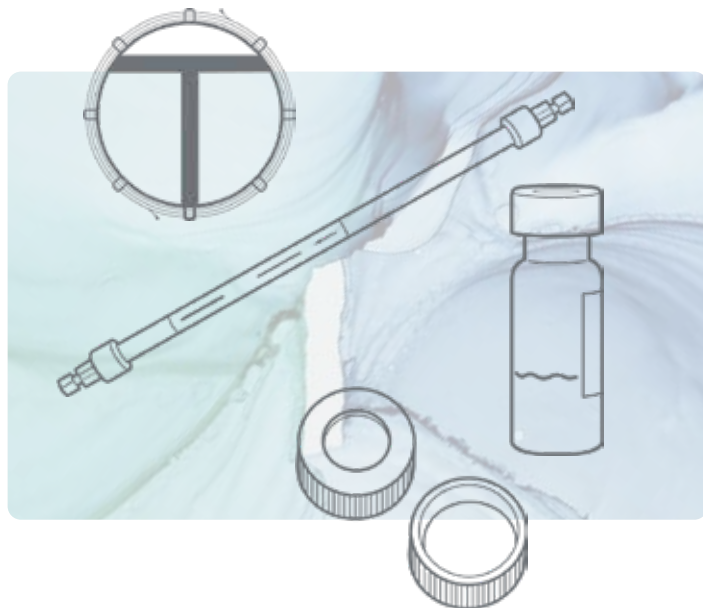
## Download application note

Learn more about determination of per- and polyfluorinated alkyl substances (PFAS) in drinking water.



# Minimize risks of contamination with consumables

Due to the increased use of PFAS, there are many different risks of contamination to the analysis. Care must be taken during sample preparation, sample handling and analysis, particularly as detection limits are in the low to sub-ppt range. It is not only recommended to ensure risks of contamination is minimized in the laboratory but also with your chromatography solution. You can minimize the risk of contamination to your chromatographic equipment by using our PFAS kit (includes PFAS-free tubing, fittings), solvent filter inlets and our isolator column. Changing the tubing and using an isolator column as part of the solution, to separate out the analytical PFAS from the system PFAS, will result in more accurate quantitation.



## PFAS columns overview

### Isolator columns

The use of an isolator column is necessary when analysing PFAS, as it helps to separate background contaminants from sample analytes, allowing for a more accurate sample result. For this we recommend Thermo Scientific™ Accucore™ C18 column.

### Analytical columns

For high retentivity and large volume direct injections a fully porous column such as Thermo Scientific™ Acclaim™ C18 column has excellent peak shape for PFAS analyses. A fully porous column with larger surface volume has more stationary phase to appropriately separate the analytes. For methods where smaller sample injection volumes are employed, Accucore RP-MS column is recommended. The Accucore column is a solid-core that provides excellent chromatographic separation and maintains robustness in challenging water matrices.

### Guard columns

Use a guard column to prolong the lifetime of your analytical column. A guard column is a protective column installed between the injector and the analytical column. It serves to remove the impurities, particulate contaminants, suspended solids and highly absorptive compounds from samples from reaching the analytical column. Read more about prolonging the lifetime of analytical column [here](#). The Acclaim and Accucore guard columns are used for PFAS within the industry.

### GC columns

For neutral (or volatile) PFAS, such as fluorotelomer alcohols (FTOHs), N-substituted fluoroalkylsulfonamides (FOSAs), the trifluoropropylmethyl polysiloxane mid-polarity phase of Thermo Scientific™ TraceGOLD™ TG-200MS provides a unique selectivity for fluorinated compounds for an adequate chromatographic separation of the targets combined with Gaussian peak shapes. Additionally, it also showed excellent peak shapes for ionic perfluoroalkylcarboxylic acids (PFCAs) and fluorotelomer carboxylic acids (FTCAs). The low polarity, arylene content of TraceGOLD TG-5SiIMS phase improves thermal stability and provides the lowest bleed, making it ideal for screening and unknown identification.

## Recommended columns

### Isolation columns

Accucore C18 column

### Analytical columns

Acclaim C18 column

Accucore RP-MS column

### Guard columns

Acclaim guard column

Accucore guard column

### GC columns

TraceGOLD TG-5SiIMS column

TraceGOLD TG-200MS column

# Columns solutions



Choose from one of the below products for your PFAS applications

## Analytical and guard LC columns for in-house/EU method, U.S. EPA method 1633, 533 and 537

Group	Description	Quantity	Cat. no
PFAS kit	PFAS-free tubing, isolator column, fittings, solvent filter inlets	Each	<a href="#">80100-62142</a>
Column	Acclaim 120 C18 Column, 2.2 µm, 2.1 mm × 100 mm	Each	<a href="#">068982</a>
Column	Acclaim Polar Advantage HPLC Column, 2.2 µm, 2.1 mm × 100 mm	Each	<a href="#">072623</a>
Guard cartridges	Acclaim 120 C18 Guard Cartridge Column, 5 µm, 2.1 mm × 10 mm	Pack of 2	<a href="#">069689</a>
Guard holder	Acclaim Guard Holder and Coupler	Each	<a href="#">069707</a>
Column	Accucore RP-MS Column, 2.6 µm, 2.1 mm × 100 mm	Each	<a href="#">17626-102130</a>
Column	Accucore RP-MS Column, 2.6 µm, 2.1 mm × 150 mm	Each	<a href="#">17626-152130</a>
Guard cartridge	Accucore RP-MS, 2.1 mm × 10 mm, Guard Cartridges	Pack of 4	<a href="#">17626-012105</a>
Guard holder	Thermo Scientific Universal Uniguard Holder for 2.1/3.0 mm ID	Each	<a href="#">852-00</a>

## Analytical and guard LC columns for U.S. EPA method 8327

Group	Description	Quantity	Cat. no
Column	Accucore RP-MS Column, 2.6 µm, 2.1 mm × 100 mm	Each	<a href="#">17626-102130</a>

## Analytical GC columns for volatile PFAS

Group	Description	Quantity	Cat. no
GC Column	TraceGOLD TG-200MS, 30 m, 0.25 mm, 1.0 µm Recommended for neutral or volatile PFAS analysis	Each	<a href="#">26084-2960</a>
GC Column	TraceGOLD TG-5SilMS, 30 m, 0.25 mm, 0.25 µm Recommended for suspect screening and non-targeted analysis	Each	<a href="#">26096-1420</a>

## Accessories

Group	Description	Quantity	Cat. no
GC liner	LinerGOLD™ SSL Liner*, single taper, wool, 4 × 6.5 × 78.5 mm Recommended for splitless injection on S/SL inlet	Pack of 5	<a href="#">453A1925-UI</a>
GC liner	LinerGOLD™ Liner, concentric baffles, 2 × 2.75 × 120 mm Recommended for splitless injection on PTV inlet for Thermo Scientific branded GC	Pack of 5	<a href="#">453T2845-UI</a>
Gas filter	Super Clean™ Gas Cartridge Filter Recommended for removing moisture, oxygen, and contaminants from gas sources	Each	<a href="#">60180-825</a>
LC Syringe	SMART Syringe, 10 µL FN GT, 57 mm length, 22sG, LC Recommended for LC injection	Each	<a href="#">365D35720-SM</a>
LC Syringe	SMART Syringe, 100 µL FN GT, 57 mm length, 22sG, LC Recommended for LC injection or GC sample preparation	Each	<a href="#">365H35720-SM</a>
LC Syringe	SMART Syringe, 1 mL FN GT, 57 mm length, 22G, LC Recommended for LC injection or GC sample preparation	Each	<a href="#">365K28110-SM</a>
LC Syringe	SMART Syringe, 5 mL FN GT, 57 mm length, 22G, LC Recommended for LC injection or GC sample preparation	Each	<a href="#">365M35720-SM</a>

\* SSL liner can be used for Thermo Scientific, Agilent, and PE branded GC. Gas cartridge is universal. More options and accessories are available.

# Sample handling solutions

## PFAS sample handling solutions overview

### Vials, caps, well plates and mats

To assure a robust method with accurate results use an absolute halogen free polypropylene vial or well plate, especially for the analysis of low concentrations of PFAS.

### Caps and septa

To assure no contamination or background corruption for PFAS analysis, we have more than one recommended closure. You are able to use one piece polypropylene snap ring caps or polypropylene 9 mm screw thread caps with a thinned penetration area. When resealing for multiple injections is important, we offer snap ring and screw thread caps with a silicone/polyimide septum for trouble free analysis.



*SureSTART vials and caps shown below are in 100 pack, but are also available in 5,000 and 10,000 pack options.*

### Vials and caps for EU methods

Group	Description	Quantity	Cat. no
Vials	Thermo Scientific™ SureSTART™ 0.4 mL clear PP 9 mm screw microvial, conical insert, Level 1	100/pack	<a href="#">6ESV9-04PP</a>
Vials	SureSTART 1.5 mL clear PP 9 mm screw microvial, conical insert, Level 1	100/pack	<a href="#">6ESV9-1PP</a>
Caps	SureSTART clear PP 9 mm screw cap, integral PP membrane, Level 1	100/pack	<a href="#">6ESC9-50</a>
Caps	SureSTART 9 mm screw blue PP cap, white silicone/red polyimide septa, Level 1	100/pack	<a href="#">6ASC9SPI1</a>
PFAS kit: vials/closures	SureSTART kit: 1.5. mL clear PP 9 mm screw vial, blue PP cap, white silicone/red polyimide septa 1.0 mm, specification certified, Level 2	100/pack	<a href="#">6AKSV9PP-15PI</a>
PFAS kit: vials/closures	SureSTART kit: 1.5. mL clear PP 9 mm screw vial, clear short thread PP AVCS™ cap, clear polypropylene integral PP septum thinned penetration area, specification certified, Level 1	100/pack	<a href="#">6EKSV9PP-15</a>
Vials	SureSTART 0.8 mL PP snap top microvials, flat bottom, Level 1	100/pack	<a href="#">6ERV11-08PPFB</a>
Vials	SureSTART 0.8 mL PP snap top microvials, conical insert, Level 1	100/pack	<a href="#">6ERV11-08PPC</a>
Vials	SureSTART 0.3 mL PP snap top microvials, conical insert, Level 1	100/pack	<a href="#">6ERV11-03PPC</a>
Caps	SureSTART blue PE 11 mm snap caps with blue PP septa, Level 1	100/pack	<a href="#">6ERC11PE</a>
Caps	SureSTART kit: 0.8 mL blue polyethylene 11 mm snap cap, white silicone/red polyimide 1.0 mm septa, Level 2	100/pack	<a href="#">6ARC11SPI1</a>
PFAS kit: vials/closures	SureSTART kit: 0.8 mL clear PP snap vial 11 mm flat bottom insert, blue 11 mm blue polyethylene snap cap, white silicone/red polyimide 1.0 mm septa, specification certified, Level 2	100/pack	<a href="#">6AKRV11PP-08PI</a>
PFAS kit: vials/closures	SureSTART kit: 0.8 mL clear PP snap vial 11 mm flat bottom insert, blue 11 mm blue polyethylene integral PE septum thinned penetration area, specification certified, Level 1	100/pack	<a href="#">6EKRV11PP-08</a>

# Sample handling solutions (continued)

## Vials and caps for U.S. EPA method 1633

Group	Description	Quantity	Cat. no
Vials	SureSTART 0.4 mL clear PP, 9 mm screw microvial, conical insert, Level 1	100/pack	<a href="#">6ESV9-04PP</a>
Vials	SureSTART 1.5 mL clear PP, 9 mm screw microvial, conical insert, Level 1	100/pack	<a href="#">6ESV9-1PP</a>
Caps	SureSTART clear PP, 9 mm screw caps with integral PP membrane, Level 1	100/pack	<a href="#">6ESC9-50</a>
Caps	SureSTART 9 mm screw blue PP cap, white silicone/red polyimide septa, Level 1	100/pack	<a href="#">6ASC9SPI1</a>
PFAS kit: vials/closures	SureSTART kit: 1.5. mL clear PP 9 mm screw vial, blue PP cap, white silicone/red polyimide septa 1.0 mm, specification certified, Level 2	100/pack	<a href="#">6AKSV9PP-15PI</a>
PFAS kit: vials/closures	SureSTART kit: 1.5. mL clear PP 9 mm screw vial, clear short thread PP AVCS cap, clear polypropylene integral PP septum thinned penetration area, specification certified, Level 1	100/pack	<a href="#">6EKSV9PP-15</a>

## Vials and caps for U.S. EPA method 533 and 537

Group	Description	Quantity	Cat. no
Vials	SureSTART 0.4 mL clear PP 9 mm screw microvial, conical insert, Level 1	100/pack	<a href="#">6ESV9-04PP</a>
Vials	SureSTART 1.5 mL clear PP 9 mm screw microvial, conical insert, Level 1	100/pack	<a href="#">6ESV9-1PP</a>
Caps	SureSTART clear PP 9 mm screw caps with integral PP membrane, Level 1	100/pack	<a href="#">6ESC9-50</a>
Caps	SureSTART 9 mm screw blue PP cap, white silicone/red polyimide septa, Level 1	100/pack	<a href="#">6ASC9SPI1</a>
PFAS kit: vials/closures	SureSTART kit: 1.5. mL clear PP 9 mm screw vial, blue PP cap, white silicone/red polyimide septa 1.0 mm, specification certified, Level 2	100/pack	<a href="#">6AKSV9PP-15PI</a>
PFAS kit: vials/closures	SureSTART kit: 1.5. mL clear PP 9 mm screw vial, clear short thread PP AVCS cap, clear polypropylene integral PP septum thinned penetration area, specification certified, Level 1	100/pack	<a href="#">6EKSV9PP-15</a>
Vials	SureSTART 0.8 mL PP snap top microvials, flat bottom, Level 1 Everyday Analysis	100/pack	<a href="#">6ERV11-08PPFB</a>
Vials	SureSTART 0.8 mL PP snap top microvials, conical insert, Level 1	100/pack	<a href="#">6ERV11-08PPC</a>
Vials	SureSTART 0.3 mL PP snap top microvials, conical insert, Level 1	100/pack	<a href="#">6ERV11-03PPC</a>
Caps	SureSTART blue PE 11 mm snap caps with blue PP septa, Level 1	100/pack	<a href="#">6ERC11PE</a>
Caps	SureSTART kit: 0.8 mL blue polyethylene 11 mm snap cap, white silicone/red polyimide 1.0 mm septa, Level 2	100/pack	<a href="#">6ARC11SPI1</a>
PFAS kit: vials/closures	SureSTART kit: 0.8 mL clear PP snap vial 11 mm flat bottom insert, blue 11 mm blue polyethylene snap cap, white silicone/red polyimide 1.0 mm septa, specification certified, Level 2	100/pack	<a href="#">6AKRV11PP-08PI</a>
PFAS kit: vials/closures	SureSTART kit: 0.8 mL clear PP snap vial 11 mm flat bottom insert, blue 11 mm blue polyethylene integral PE septum thinned penetration area, specification certified, Level 1	100/pack	<a href="#">6EKRV11PP-08</a>



# Sample handling solutions (continued)

## Vials and caps for U.S. EPA method 8327

Group	Description	Quantity	Cat. no
Vials	SureSTART 0.8 mL PP snap top microvials, flat bottom, Level 1	100/pack	<a href="#">6ERV11-08PPFB</a>
Vials	SureSTART 0.8 mL PP snap top microvials, conical insert, Level 1	100/pack	<a href="#">6ERV11-08PPC</a>
Vials	SureSTART 0.3 mL PP snap top microvials, conical insert, Level 1	100/pack	<a href="#">6ERV11-03PPC</a>
Caps	SureSTART blue PE 11 mm snap caps with blue PP septa, Level 1	100/pack	<a href="#">6ERC11PE</a>
Caps	SureSTART kit: 0.8 mL blue polyethylene 11 mm snap cap, white silicone/red polyimide 1.0 mm septa, Level 2	100/pack	<a href="#">6ARC11SPI1</a>
PFAS kit: vials/closures	SureSTART kit: 0.8 mL clear PP snap vial 11 mm flat bottom insert, blue 11 mm blue polyethylene snap cap, white silicone/red polyimide 1.0 mm septa, specification certified, Level 2	100/pack	<a href="#">6AKRV11PP-08PI</a>
PFAS kit: vials/closures	SureSTART kit: 0.8 mL clear PP snap vial 11 mm flat bottom insert, blue 11 mm blue polyethylene integral PE septum thinned penetration area, specification certified, Level 1	100/pack	<a href="#">6EKR11PP-08</a>

## Well plates and mats

Group	Description	Quantity	Cat. no
Well plate	Thermo Scientific™ WebSeal™ 96-Well Deep Well Plates, non-coated plastic, round U-bottom, 1000 µL, Level 2	50/pack	<a href="#">60180-P201</a>
Well plate mat	WebSeal 96-Well Plate Sealing Mat, 7 mm diameter, round, Level 2	100/pack	<a href="#">60180-M179</a>
Well plate	WebSeal 96-Well Deep Well Plates, non-coated plastic, square V-bottom, 2000 µL, Level 2	50/pack	<a href="#">60180-P202</a>
Well plate mat	WebSeal 96-Well Plate Sealing Mat, 8 mm diameter, square, Level 2	100/pack	<a href="#">60180-M121</a>

# Sample preparation solutions

## HyperSep SPE PFAS enabling clean sample extraction

HyperSep™ SPE PFAS SPE products are designed to address the needs of extraction and concentration of PFAS samples for targeted and not targeted screening while minimizing background contamination.

The range of selectivity's and formats are designed to meet the requirements for main environmental testing methods by extracting and concentrating samples from drinking water, ground water, surface water, wastewater, soil, food and other complex matrices.



### Sample preparation cartridges

EPA Method	Matrix	Description	Quantity	Cat. no
1633	Water, tissue, soil, or biosolids (will require use of loose carbon for the clean-up).	WAX SPE, 150 mg 6 mL	30	<a href="#">60107-150-6-WAX</a>
1633	Water	WAX GCB SPE, Dual Phase Cartridge, 50 mg GCB on bottom, 200 mg WAX top, 6 mL tube	30	<a href="#">60107-20050-WAXGCB</a>
1633	Soil, tissue, biosolids	WAX GCB SPE, Dual Phase Cartridge, 50 mg GCB on top, 200 mg WAX bottom, 6 mL tube	30	<a href="#">60107-50200-GCBWAX</a>
537.1	Water	HLD SPE, 500 mg 6 mL	30	<a href="#">60107-500-6-HLD</a>
533	Water	WAX SPE, 500 mg 6 mL	30	<a href="#">60107-500-6-WAX</a>
EU/other regulations	Water	WAX SPE, 60 mg 3 mL	50	<a href="#">60107-60-3-WAX</a>
1633	Soil/water	WAX SPE, 200 mg 6 mL	30	<a href="#">60107-200-6-WAX</a>
1633	Water, soil, tissue or biosolid cleanup step only	Loose Carbon	10 g	<a href="#">GCB-10</a>



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