



# Chemicals and Consumables for Analyzing PFAS

Per- and polyfluorinated alkyl substances (PFAS) are manufactured chemicals that have been used in a wide variety of common consumer products and industrial activities. They are known as “forever chemicals” because they do not breakdown and can bioaccumulate. As such, there is an increasing need for robust, reliable methods which includes using chemicals and consumables that are fit for the purpose of PFAS analyses.

PFAS contamination can be determined by one of several regulatory methods, including global ASTM regulations, the Stockholm Convention on persistent organic pollutants

(POPs), the EU Drinking Water Directive, and US EPA Methods 1633, 8327, 533, and 537, and OTM-45.

If you are following one of these methods – or are using an in-house method, let us help you find the right chemicals and consumables for your PFAS applications.

## Chemical Solutions

Our chemicals are available to **purchase online**. If you are starting a new testing lab and get your lab set up with all the necessary chemicals for your application. All our chemicals come in a variety of pack sizes.

### Chemicals

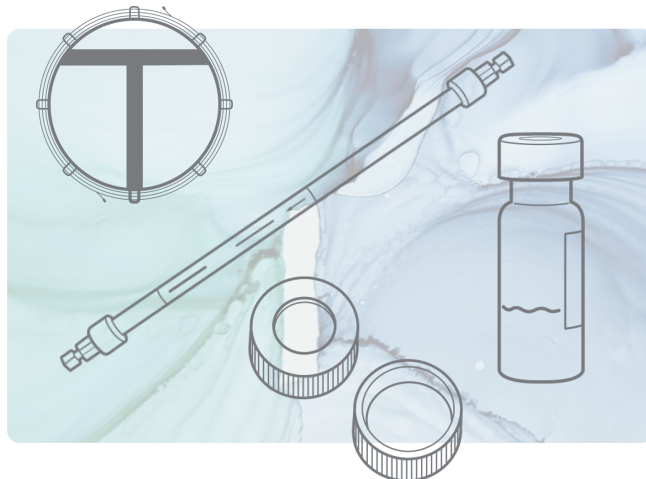
Description	Quantity	Cat. no
Acetonitrile, UHPLC-MS, Thermo Scientific Chemicals	1 L	<a href="#">15329865</a>
Methanol, UHPLC-MS, Thermo Scientific Chemicals	1 L	<a href="#">15319865</a>
Water, UHPLC-MS, Thermo Scientific Chemicals	1 L	<a href="#">15339865</a>
Acetone, 99.9%, for residue analysis, Thermo Scientific Chemicals	1 L	<a href="#">15339865</a>
Toluene, HPLC Grade, 99.7% min, Thermo Scientific Chemicals	1 L	<a href="#">11338137</a>
Dichloromethane, for residue and pesticide analysis, Thermo Scientific Chemicals	1 L	<a href="#">10517631</a>
	2.5 L	<a href="#">10369270</a>
Acetic acid, 50%, Thermo Scientific Chemicals	5 L	<a href="#">15449414</a>
	25 mL	<a href="#">10627431</a>
Formic acid, 99%, Thermo Scientific Chemicals	1 L	<a href="#">10267450</a>
	2.5 L	<a href="#">10450394</a>
	250 g	<a href="#">11477807</a>
Ammonium acetate, 97%, Thermo Scientific Chemicals	1 kg	<a href="#">11467807</a>
	5 kg	<a href="#">11487807</a>
	250 g	<a href="#">11327598</a>
Ammonium hydroxide, ACS, 28.0-30.0% NH <sub>3</sub> , Thermo Scientific Chemicals	1 kg	<a href="#">11337598</a>
	5 x 1 kg	<a href="#">11317598</a>

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# 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

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# Columns Solutions

Choose from one of the below products for your PFAS applications

## Analytical and guard columns for EU method, U.S. EPA method 1633, 533 and 537

Group	Description	Quantity	Cat. no
Column	Acclaim 120 C18 Column, 2.2 µm, 2.1 mm × 100 mm	Each	<a href="#">11311913</a>
Column	Acclaim Polar Advantage HPLC Column, 2.2 µm, 2.1 mm × 100 mm	Each	<a href="#">11351993</a>
Guard cartridges	Acclaim 120 C18 Guard Cartridge Column, 5 µm, 2.1 mm × 10 mm	Pack of 2	<a href="#">11341733</a>
Guard holder	Acclaim Guard Holder and Coupler	Each	<a href="#">11321933</a>
Column	Accucore RP-MS Column, 2.6 µm, 2.1 mm × 100 mm	Each	<a href="#">11337531</a>
Column	Accucore RP-MS Column, 2.6 µm, 2.1 mm × 150 mm	Each	<a href="#">11367531</a>
Guard cartridge	Accucore RP-MS, 2.1 mm × 10 mm, Guard Cartridges	Pack of 4	<a href="#">11677701</a>
Guard holder	Thermo Scientific Universal Uniguard Holder for 2.1/3.0 mm ID	Each	<a href="#">10776714</a>

## Analytical and guard 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="#">11337531</a>

## Analytical GC columns for volatile PFAS

Group	Description	Quantity	Cat. no
GC Column	TraceGOLD TG-200MS Column, 30 m, 0.25 mm, 1.0 µm Recommended for neutral or volatile PFAS analysis	Each	<a href="#">10016604</a>
GC Column	TraceGOLD TG-5SiIMS Column, 30 m, 0.25 mm, 0.25 µm Recommended for suspect screening and non-targeted analysis	Each	<a href="#">10177894</a>
GC liner	Thermo Scientific™ 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="#">15447990</a>
GC liner	Thermo Scientific™ 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="#">15448020</a>
Gas filter	Thermo Scientific™ Super Clean™ Gas Cartridge Filter Recommended for removing moisture, oxygen, and contaminants from gas sources	Each	<a href="#">10019682</a>

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

## Autosampler Syringe

Group	Description	Quantity	Cat. no
Syringe	FN GT Smart Syringe, 10 µL, 57 mm length, 22s gauge	TBC	<a href="#">30067483</a>
Syringe	FN GT Smart Syringe, 100 µL, 57 mm length, 22s gauge	TBC	<a href="#">30067484</a>
Syringe	FN GT Smart Syringe, 1 mL, 57 mm length, 22s gauge	TBC	<a href="#">30067485</a>
Syringe	FN GT Smart Syringe, 5 mL, 57 mm length, 22s gauge	TBC	<a href="#">30067486</a>

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# Sample Handling Solutions

## 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 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="#">17373913</a>
Vials	SureSTART 1.5 mL clear PP 9 mm screw microvial, conical insert, Level 1	100/pack	<a href="#">17303923</a>
Caps	SureSTART clear PP 9 mm screw cap, integral PP membrane, Level 1	100/pack	<a href="#">17903611</a>
Caps	SureSTART 9 mm screw blue PP cap, white silicone/red polyimide septa, Level 1	100/pack	<a href="#">17933611</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="#">17923611</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="#">17913611</a>
Vials	SureSTART 0.8 mL PP snap top microvials, flat bottom, Level 1	100/pack	<a href="#">17343913</a>
Vials	SureSTART 0.8 mL PP snap top microvials, conical insert, Level 1	100/pack	<a href="#">17313913</a>
Vials	SureSTART 0.3 mL PP snap top microvials, conical insert, Level 1	100/pack	<a href="#">17383903</a>
Caps	SureSTART blue PE 11 mm snap caps with blue PP septa, Level 1	100/pack	<a href="#">17373903</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="#">17993601</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="#">17983601</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="#">17943611</a>

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# Sample Preparation Solutions

## Titan3, Target2, and Choice syringe filters with National Target syringes for PFAS testing

Thermo Scientific™ Titan3™, Target2™, and Choice™ syringe filters remove interfering materials, fine particles, and microorganisms, from water samples providing you with cleaner sample extracts for environmental testing applications. These high-quality robust sample filtration solutions are available in a variety of syringe filter sizes, membranes, and housings. These syringe filters are complimented by Thermo Scientific National Target all-plastic disposable syringes which enable the filtration process.



### Thermo Scientific polyethersulfone (PES) syringe filters

Description	Pore Size	Diameter (metric)	Pressure rating	Color	Quantity	Cat. no
Titan3 PES Syringe filters	0.2 µm	17 mm	115 psi	dark grey	200 pack	<a href="#">17811860</a>
Titan3 PES Syringe filters with pre-filter	0.2 µm	30 mm	210 psi	dark grey	100 pack	<a href="#">13486896</a>
Target2 PES Syringe filters	0.2 µm	17 mm	115 psi	clear	100 pack	<a href="#">10017364</a>
		30 mm	150 psi	clear	100 pack	<a href="#">10290855</a>
Choice PES Syringe filters	0.2 µm	13 mm	90 psi	clear	100 pack	<a href="#">17775254</a>
		25 mm	90 psi	clear	100 pack	<a href="#">17785254</a>

### Thermo Scientific nylon syringe filters

Description	Pore Size	Diameter (metric)	Pressure rating	Color	Quantity	Cat. no
Titan3 nylon syringe filters	0.2 µm	17 mm	115 psi	light purple	200 pack	<a href="#">13486796</a>
Titan3 nylon syringe filters with pre-filter	0.2 µm	30 mm	210 psi	light purple	100 pack	<a href="#">13476896</a>
Target2 nylon syringe filters	0.2 µm	17 mm	115 psi	clear	100 pack	<a href="#">10127794</a>
		30 mm	150 psi	clear	100 pack	<a href="#">10085634</a>
Choice nylon syringe filters	0.2 µm	13 mm	90 psi	clear	100 pack	<a href="#">17765024</a>
		25 mm	90 psi	clear	100 pack	<a href="#">17795024</a>

### Thermo Scientific polyethylene syringes

Description	Type	Volume (metric)	Quantity	Cat. no
National Target all-plastic syringe	Luer-slip	3 mL	100 pack	<a href="#">10608435</a>
		5 mL		<a href="#">10271245</a>
		10 mL		<a href="#">10178894</a>
		20 mL		<a href="#">10785126</a>
National Target all-plastic syringe	Luer-lok	3 mL	100 pack	<a href="#">10362725</a>
		5 mL		<a href="#">10744366</a>
		10 mL		<a href="#">11991553</a>
		20 mL		<a href="#">10302685</a>

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## HyperSep SPE PFAS enabling clean sample extraction

Thermo Scientific™ HyperSep™ SPE PFAS 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="#">18415682</a>
1633	Water	WAX GCB SPE, Dual Phase Cartridge, 50 mg GCB on bottom, 200 mg WAX top, 6 mL tube	30	<a href="#">18465672</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="#">18485672</a>
537.1	Water	HLD SPE, 500 mg 6 mL	30	<a href="#">18475672</a>
533	Water	WAX SPE, 500 mg 6 mL	30	<a href="#">18435682</a>
EU/other regulations	Water	WAX SPE, 60 mg 3 mL	50	<a href="#">18425682</a>
1633	Soil/water	WAX SPE, 200 mg 6 mL	30	<a href="#">18495672</a>
1633	Water, soil, tissue or biosolid cleanup step only	Loose Carbon, 10 g	30 g	<a href="#">18405682</a>

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