



Product Guide for PFAS Analysis

A Methods-Based Reference to Lab Supplies for PFAS Testing

Selecting the Right Lab Supplies for PFAS Methods

When government agencies and other research organizations developed the first PFAS analysis methods, certain per- and polyfluoroalkyl substances (PFAS) exhibited signal loss or enhancement based on how the samples were handled. These unexpected sources of error could occur anywhere in the sample pathway from collection to analysis and could lead to inaccurate quantification and reporting. Significant troubleshooting efforts from those pioneering organizations resulted in two primary observations that guide how we test these “forever chemicals” today.

1. PFAS can be found everywhere—at the sampling site, in the analytical lab (even in instruments), and anywhere in between, so it is essential to prevent background sources from contaminating samples.
2. PFAS can be “sticky”—they can adhere to certain materials that are commonly used in sampling and analysis (e.g., glass containers or pipettes), so everything in the sample flow path has to be considered for its ability to retain PFAS.

Due to these characteristics, avoiding background contamination and preventing loss due to retention are particularly important for PFAS testing. Regardless of the method you are running, best practices dictate evaluating your system and supplies prior to sample analysis to qualify them for use. In some cases, the results may warrant equipment modification or replacement of parts to ensure suitability for the analytes and LODs you are testing. The following sampling and lab supplies are often screened prior to use:

- Sample collection vessels
- Solid phase extraction (SPE) products
- SPE vacuum manifolds
- Filtration devices
- Autosampler vials and caps
- Mobile phase filters
- Mobile phase transfer lines
- PTFE tubing and filters used in UHPLC or HPLC instruments (e.g., mobile phase degasser, LC pump components, etc.)
- Mobile phase solvents and reagents
- LC columns
- Anything else in the sample flow path

Table I details the lab supplies for PFAS analysis that are used in test methods from ASTM, DIN, EPA, and ISO. When selecting the right supplies, be sure to choose method-appropriate products and evaluate your system and supplies to ensure they are free of target analytes (Table II) and qualified for PFAS analysis at the levels required by the method. Restek is proud to support PFAS testing labs with clean, high-quality lab supplies and expert technical support for the analysis of legacy, alternative, and ultrashort-chain PFAS across a wide range of global testing standards.

Table I: Lab Supplies for PFAS Analysis by Method

	U.S. EPA 537.1	U.S. EPA 533	U.S. EPA 8327	ISO 25101	ISO 21675	ASTM D7979	ASTM D7968	DIN 38407-42
Sample Matrix	Drinking Water	Drinking Water	Various Waters & Solids (Soil, Sediment, Biota)	Drinking Water, Ground Water, Surface Water	Drinking Water, Natural Water, Wastewater*	Water, Sludge, Influent, Effluent, Wastewater	Solids (e.g., soil)	Drinking Water, Ground Water, Surface Water, Wastewater, Sludge
Analytical LC Column	Raptor C18 50 x 2.1 mm, 2.7 µm, (cat.# 9304A52), SPP column Force C18 50 x 2.1 mm, 1.8 µm (cat.# 9634252), FPP column Raptor Polar X 50 x 2.1 mm, 2.7 µm, (cat.# 9311A52) SPP column, for ultrashort-chain PFAS analysis [†] (Refer to our PFAS Column Selection Guide [www.restek.com/PFAS-LCC] for other column choices.)							
Delay Column	PFAS Delay Column (cat.# 27854)							
Reference Standards‡	EPA 537.1 PFAS Calibration Standard (18 components) (cat.# 30735)	EPA 533 PFAS Calibration Standard (25 components) (cat.# 30736)	PFAS Calibration Standard (24 components) (cat.# 30733)**	—	—	—	—	—
Sample Prep	Resprep S-DVB SPE (cat.# 28937)	Resprep WAX SPE (60 µm particle cat.# 28470; 30 µm particle cat.# 28291, 28292)	—	Resprep WAX SPE (60 µm particle cat.# 28469, 28470; 30 µm particle cat.# 28291, 28292)	Resprep WAX SPE (60 µm particle cat.# 28469, 28470; 30 µm particle cat.# 28291, 28292)	—	—	Resprep WAX SPE (60 µm particle cat.# 28468, 28469, 28470; 30 µm particle cat.# 28291, 28292)
Vials and Caps	Polypropylene Vials (cat.# 23242, 23245) Polyethylene Vial Caps (cat.# 23244, 23247)							
Vacuum Manifold	Resprep QR-12, QR-24 (cat.# 28298-VM, 28299-VM) Replacement Parts for Resprep Quick-Release (QR) SPE Vacuum Manifolds							
Vacuum Pump	Rocker Vacuum Pumps							
Sample Reservoirs	Polypropylene Sample Reservoir (cat.# 26015) Polypropylene Connectors (cat.# 26007)	—	—	Polypropylene Sample Reservoir (cat.# 26015) Polypropylene Connectors (cat.# 26007)	—	—	—	Polypropylene Sample Reservoir (cat.# 26015) Polypropylene Connector (cat.# 26007)

*Containing less than 2 g/L solid particulate material.

†Ideal for <C4 PFAS. No official testing standards are available.

‡Additional PFAS standards are available.

**Meets EPA 8372 method requirements.

Access technical resources, chromatograms,
and new lab supplies for PFAS analysis at
www.restek.com

Table II: PFAS Compound Lists by Method

U.S. EPA 537.1	U.S. EPA 533	U.S. EPA 8327
<ul style="list-style-type: none"> • N-ethyl perfluorooctane-sulfonamidoacetic acid (NEt-FOSAA) • N-methyl perfluorooctane-sulfonamidoacetic acid (NMeFOSAA) • Perfluorobutanesulfonic acid (PFBS) • Perfluorodecanoic acid (PFDA) • Perfluorododecanoic acid (PFDoA) • Perfluoroheptanoic acid (PFHpA) • Perfluorohexanesulfonic acid (PFHxS) • Perfluorohexanoic acid (PFHxA) • Perfluorononanoic acid (PFNA) • Perfluorooctanesulfonic acid (PFOS) • Perfluorooctanoic acid (PFOA) • Perfluorotetradecanoic acid (PFTA) • Perfluorotridecanoic acid (PFTrDA) • Perfluoroundecanoic acid (PFUnA) • Hexafluoropropylene oxide dimer acid (HFPO-DA) • 9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) • 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) • 11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) 	<ul style="list-style-type: none"> • Perfluorobutanesulfonic acid (PFBS) • Perfluorodecanoic acid (PFDA) • Perfluorododecanoic acid (PFDoA) • Perfluoroheptanoic acid (PFHpA) • Perfluorohexanesulfonic acid (PFHxS) • Perfluorohexanoic acid (PFHxA) • Perfluorononanoic acid (PFNA) • Perfluorooctanesulfonic acid (PFOS) • Perfluorooctanoic acid (PFOA) • Perfluoroundecanoic acid (PFUnA) • Hexafluoropropylene oxide dimer acid (HFPO-DA) • Perfluorobutanoic acid (PFBA) • Perfluoropentanoic acid (PFPeA) • Perfluoroheptanesulfonic acid (PFHpS) • Perfluoropentanesulfonic acid (PFPeS) • 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) • 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) • 1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) • 9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS) • 4,8-Dioxa-3H-perfluorononanoic acid (ADONA) • Perfluoro (2-ethoxyethane) sulfonic acid (PFEEA) • Nonafluoro-3,6-dioxaheptanoic acid (NFDHA) • Perfluoro-3-methoxypropanoic acid (PFMPA) • Perfluoro-4-methoxybutanoic acid (PFMBA) • 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS) 	<ul style="list-style-type: none"> • N-ethylperfluoro-1-octanesulfonamidoacetic acid (N-EtFOSAA) • N-methylperfluoro-1-octanesulfonamidoacetic acid (N-MeFOSAA) • Perfluorobutanesulfonic acid (PFBS) • Perfluorodecanoic acid (PFDA) • Perfluorododecanoic acid (PFDoA) • Perfluoroheptanoic acid (PFHpA) • Perfluorohexanesulfonic acid (PFHxS) • Perfluorohexanoic acid (PFHxA) • Perfluorononanoic acid (PFNA) • Perfluorooctanesulfonic acid (PFOS) • Perfluorooctanoic acid (PFOA) • Perfluorotetradecanoic acid (PFTEdA) • Perfluorotridecanoic acid (PFTrA) • Perfluoroundecanoic acid (PFUdA) • Perfluorobutanoic acid (PFBA) • Perfluoropentanoic acid (PFPeA) • Perfluorodecanesulfonic acid (PFDS) • Perfluoroheptanesulfonic acid (PFHpS) • Perfluoropentanesulfonic acid (PFPeS) • Perfluoro-1-octanesulfonamide (FOSA) • 1H, 1H, 2H, 2H-perfluorohexane sulfonic acid (4:2 FTS) • 1H, 1H, 2H, 2H-perfluorooctane sulfonic acid (6:2 FTS) • 1H, 1H, 2H, 2H-perfluorodecane sulfonic acid (8:2 FTS) • Perfluoronanesulfonic acid (PFNS)

ISO 25101	ISO 21675	ASTM D7979 & D7968	DIN 38407-42
<ul style="list-style-type: none"> • Perfluoro-<i>n</i>-octanesulfonic acid • Perfluoro-<i>n</i>-octanoic acid (pentadecafluoro-<i>n</i>-octanoic acid) 	<ul style="list-style-type: none"> • N-ethyl perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) • N-methyl perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) • Perfluoro-<i>n</i>-butanesulfonic acid (PFBS) • Perfluoro-<i>n</i>-decanoic acid (PFDA) • Perfluoro-<i>n</i>-dodecanoic acid (PFDoDA) • Perfluoro-<i>n</i>-heptanoic acid (PFHpA) • Perfluoro-<i>n</i>-hexanesulfonic acid (PFHxS) • Perfluoro-<i>n</i>-hexanoic acid (PFHxA) • Perfluoro-<i>n</i>-nonanoic acid (PFNA) • Perfluoro-<i>n</i>-octanesulfonic acid (PFOS) • Perfluoro-<i>n</i>-octanoic acid (PFOA) • Perfluoro-<i>n</i>-tetradecanoic acid (PFTeDA) • Perfluoro-<i>n</i>-tridecanoic acid (PFTrDA) • Perfluoro-<i>n</i>-undecanoic acid (PFUnDA) • Hexafluoropropylene oxide dimer acid (HFPO-DA) • Perfluoro-<i>n</i>-butanoic acid (PFBA) • Perfluoro-<i>n</i>-pentanoic acid (PFPeA) • Perfluoro-<i>n</i>-decanesulfonic acid (PFDS) • Perfluoro-<i>n</i>-heptanesulfonic acid (PFHpS) • Perfluorooctanesulfonamide (FOSA) • 6:2 Fluorotelomer sulfonic acid (6:2 FTSA) • 8:2 Fluorotelomer sulfonic acid (8:2 FTSA) • 8:2 Fluorotelomer unsaturated carboxylic acid (8:2 FTUCA) • 8:2 Polyfluoroalkyl phosphate diester (8:2 diPAP) • N-methyl perfluorooctanesulfonamide (N-MeFOSA) • N-ethyl perfluorooctanesulfonamide (N-EtFOSA) • Perfluoro-<i>n</i>-hexadecanoic acid (PFHxDA) • Perfluoro-<i>n</i>-octadecanoic acid (PFOcDA) • 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS, aka F-53B or 6:2CL-PFESA) • 4,8-Dioxa-3H-perfluorononanoic acid (DONA) 	<ul style="list-style-type: none"> • Perfluorobutylsulfonate (PFBS) • Perfluorodecanoate (PFDA) • Perfluorodecanoate (PFDoA) • Perfluoroheptanoate (PFHpA) • Perfluorohexylsulfonate (PFHxS) • Perfluorohexanoate (PFHxA) • Perfluorononanoate (PFNA) • Perfluorooctylsulfonate (PFOS) • Perfluorooctanoate (PFOA) • Perfluorotetradecanoate (PFTeA) • Perfluorotridecanoate (PFTrA) • Perfluoroundecanoate (PFUnA) • Perfluorobutanoate (PFBA) • Perfluoropentanoate (PFPeA) • 2H-perfluoro-2-decenoic acid (FOUEA) • Decafluoro-4-(pentafluoroethyl)cyclohexanesulfonate (PFecHS) • 2-Perfluorohexyl ethanoic acid (FHEA) • 2-Perfluorooctyl ethanoic acid (FOEA) • 2-Perfluorodecyl ethanoic acid (FDEA) • 3-Perfluoropheptyl propanoic acid (FHpPA) • 2H-perfluoro-2-octenoic acid (FHUEA) 	<ul style="list-style-type: none"> • Perfluoro-<i>n</i>-butanesulfonic acid (PFBS) • Perfluoro-<i>n</i>-decanoic acid (PFDA) • Perfluoro-<i>n</i>-heptanoic acid (PFHpA) • Perfluoro-<i>n</i>-hexanesulfonic acid (PFHxS) • Perfluoro-<i>n</i>-hexanoic acid (PFHxA) • Perfluoro-<i>n</i>-nonanoic acid (PFNA) • Perfluoro-<i>n</i>-octanesulfonic acid (PFOS) • Perfluoro-<i>n</i>-octanoic acid (PFOA) • Perfluoro-<i>n</i>-butanoic acid (PFBA) • Perfluoro-<i>n</i>-pentanoic acid (PFPeA)



Resprep S-DVB SPE Cartridge

- High-purity material with highest reproducibility and lowest blank values due to an optimized manufacturing process.
- Excellent recovery rates, especially for the enrichment of pharmaceuticals and active ingredients, due to the spherical particle shape, homogeneous surface, and optimized pore structure.
- Hydrophobic styrene-divinylbenzene (SDVB) copolymer, pH stability 1–14.
- Unique polypropylene locking ring helps prevent frit movement common to S-DVB sorbent.
- Recommended analytes: PFAS in drinking water; pharmaceuticals/active ingredients from tablets, creams, and water/wastewater; drugs from blood, plasma, serum, and urine; trace analysis of herbicides, pesticides, PAHs, PCBs; and phenols from water.
- Ideal for EPA Method 537.1 PFAS in drinking water; meets method performance requirements.

Description	Packing	Volume	qty.	cat.#
Resprep S-DVB	500 mg spherical styrene-divinylbenzene (SDVB) copolymer	6 mL	30-pk.	28937



25845



Resprep CarboPrep Plus SPE Cartridges

- Designed specifically for the cleanup of sample extracts for organochlorine pesticides analysis.
- Excellent alternative to Florisil products, especially for the removal of nonvolatile matrix components that contaminate GC inlets and columns.
- Proprietary treatment renders the carbon consistent and clean, ensuring the same selectivity tube to tube and lot to lot with no interfering background.
- Uses the same hardware, solvents, and solvent volumes as traditional Florisil cleanup, so switching is simple.

Description	Packing	Volume	qty.	cat.#
Resprep CarboPrep Plus SPE Cartridges	CarboPrep Plus	3 mL, 95 mg	30-pk.	25845

ordering notes

Certificates of analysis for this product are provided electronically. To view and download your certificate, simply visit www.restek.com/documentation

Limited-Volume 2.0 mL, 9 mm Screw-Thread Polypropylene Vials

- Available in 1.5 mL or 700 µL volumes.
- Limited-volume design fits all 2.0 mL, 12 x 32 mm, vial-based autosamplers.
- Compatible with all 9 mm screw-thread caps.
- PTFE-free—ideal for PFAS analysis (e.g., EPA 537) and other PFAS-sensitive methods.

Description	Type	Volume	Color	Size	qty.	Similar to Part #	cat.#
Limited-Volume 2.0 mL, 9 mm Screw-Thread Polypropylene Vials,	9 mm Screw-Thread	1.5 mL	Clear	12 x 32 mm	100-pk.	Thermo Fisher Scientific C4000-14	23242
	9 mm Screw-Thread	1.5 mL	Clear	12 x 32 mm	1000-pk.	Thermo Fisher Scientific C4000-14	23245
	9 mm Screw-Thread	700 µL	Clear	12 x 32 mm	100-pk.	Waters 186005230	23243
	9 mm Screw-Thread	700 µL	Clear	12 x 32 mm	1000-pk.	Waters 186005230	23246



23242

2.0 mL, 9 mm Solid-Top Polyethylene Caps

- Compatible with all 9 mm screw-thread vials.
- Molded, 10 mil, solid, pierceable cap.
- PTFE-free—ideal for PFAS analysis (e.g., EPA 537) and other PFAS-sensitive methods.

Note: Polyethylene caps prevent sample contamination from PTFE-coated septa. However, since polyethylene caps do not reseal, evaporation occurs after injection. Multiple injections from the same vial are therefore not possible.



23244

Description	Type	Cap Size	Color	qty.	Similar to Part #	cat.#
2.0 mL, 9 mm Solid-Top Polyethylene Caps,	Screw-Thread	9 mm	Clear	100-pk.	Waters 186004169	23244
	Screw-Thread	9 mm	Clear	1000-pk.	Waters 186004169	23247



Resprep Polymeric SPE Cartridges and 96-Well Plates

- Silica-free, bonded polymeric material—no unwanted secondary silica interactions, even with basic compounds.
- High surface area—higher loading capacity compared to silica-based sorbents.
- Stable over a wide pH range (0–14)—won't hydrolyze under extreme conditions.
- Water-wettable—streamlined conditioning and equilibration steps drastically reduce solvent usage and sample prep time.
- No flow-rate dependence—maintains retention and capacity after conditioning, even if dried out from vacuum or positive pressure flows.
- Choose cartridges for high loading capacity; 96-well plates for high throughput and automation.

ordering notes

Certificates of analysis for this product are provided electronically. To view and download your certificate, simply visit www.restek.com/ documentation

Description	Packing	Particle Size	Recommended Analytes	Volume	qty.	cat.#
Resprep Polymeric SPE 96-Well Plate	HLB	30 µm	General-purpose for acids, bases, or neutrals; high capacity for polar compounds.	10 mg	ea.	28453
	HLB	30 µm	General-purpose for acids, bases, or neutrals; high capacity for polar compounds.	30 mg	ea.	28454
Resprep Polymeric SPE Cartridge	HLB	30 µm	General-purpose for acids, bases, or neutrals; high capacity for polar compounds.	1 mL, 30 mg	100-pk.	28449
	HLB	60 µm	General-purpose for acids, bases, or neutrals; high capacity for polar compounds.	3 mL, 60 mg	50-pk.	28450
	HLB	60 µm	General-purpose for acids, bases, or neutrals; high capacity for polar compounds.	6 mL, 200 mg	30-pk.	28451
	HLB	60 µm	General-purpose for acids, bases, or neutrals; high capacity for polar compounds.	6 mL, 500 mg	30-pk.	28452
	MAX	30 µm	Acids	10 mg	ea.	28459
Resprep Polymeric SPE 96-Well Plate	MAX	30 µm	Acids	30 mg	ea.	28460
	MAX	30 µm	Acids	1 mL, 30 mg	100-pk.	28455
	MAX	60 µm	Acids	3 mL, 60 mg	50-pk.	28456
	MAX	60 µm	Acids	6 mL, 150 mg	30-pk.	28457
	MAX	60 µm	Acids	6 mL, 500 mg	30-pk.	28458
Resprep Polymeric SPE Cartridge	MCX	30 µm	Bases	10 mg	ea.	28465
	MCX	30 µm	Bases	30 mg	ea.	28466
	MCX	30 µm	Bases	1 mL, 30 mg	100-pk.	28461
	MCX	60 µm	Bases	3 mL, 60 mg	50-pk.	28462
	MCX	60 µm	Bases	6 mL, 150 mg	30-pk.	28463
Resprep Polymeric SPE 96-Well Plate	MCX	60 µm	Bases	6 mL, 500 mg	30-pk.	28464
	WAX	30 µm	Strong acids	10 mg	ea.	28471
	WAX	30 µm	Strong acids	30 mg	ea.	28472
	WAX	30 µm	Strong acids	1 mL, 30 mg	100-pk.	28467
	WAX	60 µm	Strong acids	3 mL, 60 mg	50-pk.	28468
Resprep Polymeric SPE Cartridge	WAX	60 µm	Strong acids	6 mL, 150 mg	30-pk.	28469
	WAX	30 µm	Strong acids	6 mL, 200 mg	30-pk.	28292
	WAX	30 µm	Strong acids	6 mL, 500 mg	30-pk.	28291
	WAX	60 µm	Strong acids	6 mL, 500 mg	30-pk.	28470
Resprep Polymeric SPE 96-Well Plate	WCX	30 µm	Strong bases	10 mg	ea.	28477
	WCX	30 µm	Strong bases	30 mg	ea.	28478
	WCX	30 µm	Strong bases	1 mL, 30 mg	100-pk.	28473
	WCX	60 µm	Strong bases	3 mL, 60 mg	50-pk.	28474
	Resprep Polymeric SPE Cartridge	WCX	60 µm	Strong bases	6 mL, 200 mg	30-pk.
WCX		60 µm	Strong bases	6 mL, 500 mg	30-pk.	28476

HLB – Hydrophilic-Lipophilic Balance
 MAX – Mixed-Mode, Strong Anion Exchange
 MCX – Mixed-Mode, Strong Cation Exchange
 WAX – Mixed-Mode, Weak Anion Exchange
 WCX – Mixed-Mode, Weak Cation Exchange

Resprep SPE Tube Parts & Accessories

Resprep tubes, frits, caps, and connectors for your method development needs.

Description	Material	Porosity	Volume	qty.	Similar to Part #	cat.#
Empty Tubes	polypropylene		1 mL	50-pk.		26010
	polypropylene		3 mL	50-pk.		26011
	polypropylene		6 mL	50-pk.		26012
	polypropylene		15 mL	50-pk.		26013
	polypropylene		sample reservoir, 25 mL	12-pk.		26014
	polypropylene		sample reservoir, 75 mL	12-pk.		26015
Frits	polyethylene	20 µm	1 mL, 6 mm	100-pk.		26016
	polyethylene	20 µm	3 mL, 9 mm	100-pk.	Agilent 12131020	26017
	polyethylene	20 µm	6 mL, 1.2 cm	100-pk.		26018
	polyethylene	20 µm	15 mL, 1.6 cm	100-pk.		26019
	polyethylene	20 µm	25 mL, 2.0 cm (For 20 mL packed tubes.)	100-pk.		26020
Tube Caps	polyethylene		1 mL	12-pk.		26001
	polyethylene		3 mL	12-pk.		26002
	polyethylene		6 mL	12-pk.		26003
	polyethylene		15 mL	12-pk.		26004
	polyethylene		25 mL (For 20 mL packed tubes.)	12-pk.		26005
Female Luer End Caps	polypropylene		universal	12-pk.		26000
Connectors	polypropylene		1, 3, 6, 10, or 15 mL	15-pk.	Agilent 12131001	26007
	polypropylene		12, 25 mL	12-pk.		26008
	polypropylene		60 mL	12-pk.		26009



Resprep Quick-Replace SPE Vacuum Manifolds (12- or 24-Port)

- Disposable, quick-replace valve liners ensure a clean flow path and eliminate cross-contamination of samples extracted on the same port.
- Individual screw-type valves in each SPE port provide precise flow control.
- Easily modified sample collection rack supports a wide variety of collection vessels.
- Solvent-resistant vacuum gauge and bleed valve offer better sealing and vacuum control.
- Valves are compatible with any standard male luer end SPE cartridge.

Resprep QR-12 and QR-24 Quick-Replace vacuum manifolds enable analysts using solid phase extraction (SPE) cartridges to simultaneously prepare up to 12 or 24 samples. These manifolds are designed to eliminate the risk of contamination when consecutive samples are extracted in a manifold port. They are equipped with integral flow control valves, and each valve has an inexpensive, disposable PTFE liner/solvent guide running through its length. This guide acts as a liner so that all surfaces that come in contact with a sample can be discarded and replaced following each extraction. A luer hub attached to the PTFE liner fits snugly into a matching slot on the flow control valve stem. As the SPE cartridge is rotated on its axis, the valve pinches or releases the liner, stopping or starting the flow.



Description	Includes	Size	qty.	cat.#
Resprep QR-12 Quick-Replace vacuum manifold	Cover with flow control valves & gasket (cat.# 28316-VM); Collection Rack (cat.# 28318-VM); Plate for 16 mm test tubes (cat.# 28319-VM); 100-pk. Quick Replace liners, PTFE (cat.# 28310-VM); 12-pk. Liner guide (cat.# 28312-VM); 12-pk. Test tubes (cat.# 28315-VM)	12-port	kit	28298-VM
Resprep QR-24 Quick-Replace vacuum manifold	Cover with flow control valves & gasket (cat.# 28323-VM); Collection Rack (cat.# 28325-VM); Plate for 16 mm test tubes (cat.# 28326-VM); 100-pk. Quick Replace liners, PTFE (cat.# 28310-VM); 2, 12-pk. Liner guides (cat.# 28312-VM); 2, 12-pk. Test tubes (cat.# 28315-VM)	24-port	kit	28299-VM

Note: Extra plates to accommodate for 2 mL autosampler vials (28320-VM and 28327-VM) and 20 mL scintillation vials (28321-VM for QR-24 only) can be purchased if needed.



Replacement Parts for Resprep Quick-Replace SPE Vacuum Manifolds

(12- or 24-Port)

Description	Size	qty.	cat.#
Cover with flow control valves & gasket for Resprep QR-12	for QR-12	ea.	28316-VM
Gasket for Resprep QR-12	for QR-12	2-pk.	28317-VM
Collection rack for Resprep QR-12	for QR-12	ea.	28318-VM
Plate for 16 mm test tubes for Resprep QR-12	for QR-12	ea.	28319-VM
Plate for 2 mL autosampler vials for Resprep QR-12	for QR-12	ea.	28320-VM
Plate for 20 mL scintillation vials for Resprep QR-12	for QR-12	ea.	28321-VM
Splash guard for Resprep QR-12	for QR-12	ea.	28322-VM
Cover with flow control valves & gasket for Resprep QR-24	for QR-24	ea.	28323-VM
Gasket for Resprep QR-24	for QR-24	2-pk.	28324-VM
Collection rack for Resprep QR-24	for QR-24	ea.	28325-VM
Plate for 16 mm test tubes for Resprep QR-24	for QR-24	ea.	28326-VM
Plate for 2 mL autosampler vials for Resprep QR-24	for QR-24	ea.	28327-VM
Valve stem for Resprep Quick-Replace vacuum manifolds	for QR-12 and QR-24	24-pk.	28308-VM
Quick-replace disposable liners (PTFE) for Resprep Quick-Replace vacuum manifolds	for QR-12 and QR-24	100-pk.	28310-VM
Quick-replace flow control valves for Resprep Quick-Replace vacuum manifolds	for QR-12 and QR-24	2-pk.	28311-VM
Liner guides (stainless steel) for Resprep Quick-Replace vacuum manifolds	for QR-12 and QR-24	12-pk.	28312-VM
Vacuum gauge and bleed valve for Resprep Quick-Replace vacuum manifolds	for QR-12 and QR-24	ea.	28313-VM
Retaining clips for collection racks for Resprep Quick-Replace vacuum manifolds	for QR-12 and QR-24	12-pk.	28314-VM
Test tubes (10 x 75 mm) for Resprep Quick-Replace vacuum manifolds	for QR-12 and QR-24	12-pk.	28315-VM



Rocker Vacuum Pumps

- Oil-free vacuum pumps are piston powered, so they do not pollute the air and require minimal maintenance.
- Quiet, low-vibration units keep disturbances to a minimum.
- Built-in thermal protector automatically shuts off pump if it overheats and then restarts it once the unit is cool.
- Inlet filter traps particles and removes moisture, prolonging pump life.
- International CE and CSA certification.
- Applications include filtration for air sampling, microbiology, suspended solid test, vacuum oven, thermal desorption (TD) tubes, sampling bags (regulator recommended for TD tubes and sampling bags), and general use. (Not intended to evacuate air canisters.)
- Two-year pump warranty.

Description	Instrument	Flow Capacity	Used with	Voltage	qty.	cat.#
Vacuum Pump	Rocker 300	21 L/min		AC110 V, 60 Hz	ea.	27424
	Rocker 300	18 L/min		AC220 V, 50 Hz	ea.	27425
	Rocker 300DC	25 L/min	For use with automotive type 12 V battery.	DC Power (12 V)	ea.	27447
	Rocker 400	37 L/min		AC110 V, 60 Hz	ea.	27432
	Rocker 400	34 L/min		AC220 V, 50 Hz	ea.	27433
	Rocker 410	23 L/min		AC110 V, 60 Hz	ea.	27434
	Rocker 410	20 L/min		AC220 V, 50 Hz	ea.	27435
	Rocker 500	28 L/min		AC110 V, 60 Hz	ea.	27436
	Rocker 500	23 L/min		AC220 V, 50 Hz	ea.	27437

PFAS Delay Column

- Traps system-related PFAS, preventing interference and ensuring accurate trace-level analysis of PFAS in samples.
- Universal compatibility: works with
 - any HPLC or UHPLC up to 15,000 psi (1034 bar);
 - both FPP and SPP analytical columns; and
 - all stationary phases.
- Highly retentive of system-related PFAS; no breakthrough even with extended equilibration times.
- Easy installation with standard fittings.

ID	Length	qty.	cat.#
5 µm Particles			
2.1mm	50 mm	ea.	27854



Particle: 5 µm, spherical, fully porous
 pH Range: 2.5 to 8
 Maximum Temperature: 80 °C
 Maximum Pressure: 1034 bar/15,000 psi

Raptor C18 LC Columns (USP L1)

- A traditional end-capped C18 ideal for general-purpose use in reversed-phase chromatography.
- Wide pH range (2–8) provides excellent data quality for many applications, matrices, and compounds.
- Offers the highest hydrophobic retention of any Raptor phase.
- Part of Restek's Raptor LC column line featuring 1.8, 2.7, and 5 µm SPP core-shell silica.

ID	Length	qty.	cat.#
1.8 µm Particles			
2.1 mm	100 mm	ea.	9304212
3.0 mm	100 mm	ea.	930421E
	30 mm	ea.	9304232
2.1 mm	50 mm	ea.	9304252
3.0 mm	50 mm	ea.	930425E
2.1 mm	150 mm	ea.	9304262
2.7 µm Particles			
2.1 mm	100 mm	ea.	9304A12
4.6 mm	100 mm	ea.	9304A15
3.0 mm	100 mm	ea.	9304A1E
2.1 mm	30 mm	ea.	9304A32
4.6 mm	30 mm	ea.	9304A35
3.0 mm	30 mm	ea.	9304A3E
2.1 mm	50 mm	ea.	9304A52
4.6 mm	50 mm	ea.	9304A55
3.0 mm	50 mm	ea.	9304A5E
2.1 mm	150 mm	ea.	9304A62
4.6 mm	150 mm	ea.	9304A65
3.0 mm	150 mm	ea.	9304A6E
5 µm Particles			
2.1 mm	100 mm	ea.	9304512
4.6 mm	100 mm	ea.	9304515
	100 mm	ea.	930451E
3.0 mm	30 mm	ea.	930453E
2.1 mm	50 mm	ea.	9304552
4.6 mm	50 mm	ea.	9304555
3.0 mm	50 mm	ea.	930455E
2.1 mm	150 mm	ea.	9304562
4.6 mm	150 mm	ea.	9304565
3.0 mm	150 mm	ea.	930456E
4.6 mm	250 mm	ea.	9304575



Stationary Phase Category: C18, octadecylsilane (L1)
 Ligand Type: End-capped C18
 Particle: 1.8 µm, 2.7 µm, or 5 µm superficially porous particle (SPP or "core-shell" particle) silica
 Pore Size: 90 Å
 Carbon Load: 9% (1.8 µm), 7% (2.7 µm), 5% (5 µm)
 End-Cap: yes
 Surface Area: 125 m²/g (1.8 µm), 130 m²/g (2.7 µm), or 100 m²/g (5 µm)
 Recommended Usage:
 pH Range: 2.0–8.0
 Maximum Temperature: 80 °C
 Maximum Pressure: 1034 bar/15,000 psi* (1.8 µm), 600 bar/8700 psi (2.7 µm); 400 bar/5800 psi (5 µm)
 * For maximum lifetime, recommended maximum pressure for 1.8 µm particles is 830 bar/12,000 psi.

Properties:

- Compatible with moderately acidic to neutral mobile phases (pH 2–8).
- Excellent data quality in food, environmental, bioanalytical, and other applications.

Switch to a C18 column when:

- You need a general-purpose column for reversed-phase chromatography.
- You need to increase retention of hydrophobic compounds.



Raptor Polar X LC Columns

- Reliably analyze a wide variety of polar analytes (acidic, basic, and neutral) without time-consuming derivatization or complex ion pairing.
- Switch between HILIC and ion-exchange retention modes with simple mobile phase changes and short equilibration times.
- 2.7 μm Raptor core-shell particles provide UHPLC-like speed and efficiency on all makes and models of LC systems.
- Ideal for increasing sensitivity and selectivity in LC-MS analyses.

Storage Conditions: When not in use, Raptor Polar X columns must be kept in 100% acetonitrile. If using a buffered mobile phase, first flush thoroughly with 50:50 water:acetonitrile, then fill with acetonitrile for storage.

Pore Size: 90 Å
 Particle: 2.7 μm superficially porous particle (SPP or “core-shell” particle) silica
 Surface Area: 130 m^2/g
 End-Cap: Proprietary
 Carbon Load: Proprietary
 USP Phase Code: NA
 Phase Category: Proprietary
 Ligand Type: Proprietary
Recommended Usage:
 pH Range: 2.0–8.0
 Maximum Temperature: 60 °C
 Maximum Pressure: 600 bar/8700 psi

Properties:

- Excellent resolution and separation of a wide variety of polar compounds.
- Combines HILIC and ion-exchange retention mechanisms together in a single ligand.
- Broadly applicable for polar compound analysis spanning different industries and methods.

Switch to a Raptor Polar X column when:

- You are analyzing neutral, acidic, basic, or permanently charged polar compounds.
- Performing LC-MS/MS analysis of polar compounds.
- You are struggling to retain *or* elute polar compounds and considering ion chromatography.

ID	Length	qty.	cat.#
2.7 μm Particles Raptor Polar X LC Column			
2.1 mm	30 mm	ea.	9311A32
	50 mm	ea.	9311A52
	100 mm	ea.	9311A12

Low-Pressure Slip-On Inlet Filter for Mobile Phase Reservoir

A 316 stainless-steel tip with a Tefzel collar seals to a corrosion-resistant, 316 stainless-steel filter element. The slip-on filter easily attaches to the pump inlet line without the use of wrenches. The universal 1/8" OD tip accommodates standard PTFE tubing inner diameters. The cylindrical filter is standard 10 µm porosity. Fits Altex, ISCO, LDC, Varian, Waters, PerkinElmer, and other pumps.



25008

Description	qty.	cat.#
Slip-On Inlet Filter	ea.	25008

Survival Kit for HPLC, Stainless Steel

For start-up and maintenance in all HPLC systems.

The stainless-steel survival kit contains a wide range of tubing, fittings, and tools necessary to set up and maintain your HPLC system: a selection of lengths and IDs of 1/16" tubing, nuts, ferrules, a ValvTool wrench, and a zero-dead-volume union.

Kit includes:

- HPLC Capillary Tubing, SS, 1/16" x 0.005" x 5 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.005" x 10 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.005" x 20 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.005" x 30 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.007" x 5 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.007" x 10 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.007" x 20 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.007" x 30 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.010" x 5 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.010" x 10 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.010" x 20 cm, 3-pk.

- HPLC Capillary Tubing, SS, 1/16" x 0.010" x 30 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.020" x 5 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.020" x 10 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.020" x 20 cm, 3-pk.
- HPLC Capillary Tubing, SS, 1/16" x 0.020" x 30 cm, 3-pk.
- 1/16" Rheodyne Style Nut, 10-pk.
- 1/16" Rheodyne Style Ferrule, 10-pk.
- ValvTool Wrench, ea.
- Ferrules, 1/16" Stainless Steel, 10-pk.
- Nuts, 1/16" Stainless Steel, 10-pk.
- Zero-Dead-Volume Internal Union, ea.



25097

Description	qty.	cat.#
Survival Kit for HPLC	kit	25097

Developing new methods?

Review our PFAS Column Selection Guide for chromatograms as well as column phase and dimension recommendations optimized for different PFAS types and instrumentation.





EPA 533 PFAS Calibration Standard

(25 components)

- 25-component mix simplifies calibration complexity, saving time and reducing cost.
- Specifically formulated to meet EPA 533 method requirements.
- Verified composition and stability ensure long lasting shelf-life.
- Two independently produced lots available.
- Ideal for the analysis of PFAS in water and other matrices.



11-chloroicosafuoro-3-oxaundecane-1sulfonic acid (11Cl-PF3OUdS) (763051-92-9)	Perfluoro-5-oxahexanoic acid (PFMPA) (377-73-1)
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) (39108-34-4)	Perfluoro-4-methoxybutanoic acid (PFMBA) (863090-89-5)
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) (757124-72-4)	Perfluorobutanesulfonic acid (PFBS) (375-73-5)
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) (27619-97-2)	Perfluorobutanoic acid (PFBA) (375-22-4)
4,8-dioxa-3H-perfluorononanoic acid (ADONA) (919005-14-4)	Perfluorodecanoic acid (PFDA) (335-76-2)
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) (756426-58-1)	Perfluorododecanoic acid (PFDOA) (307-55-1)
2-(Heptafluoropropoxy)2,3,3-tetrafluoropropionic acid (HFPO-DA) (13252-13-6)	Perfluoroheptanesulfonic acid (PFHpS) (375-92-8)
Perfluoro-3,6-dioxahexanoic acid (NFDHA) (151772-58-6)	Perfluoroheptanoic acid (PFHpA) (375-85-9)
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA) (113507-82-7)	Perfluorohexanesulfonic acid (PFHxS)* (355-46-4)
	Perfluorohexanoic acid (PFHxA) (307-24-4)
	Perfluorononanoic acid (PFNA) (375-95-1)
	Heptadecafluorooctanesulfonic acid (PFOS)* (1763-23-1)
	Perfluorooctanoic acid (PFOA)* (335-67-1)
	Perfluoropentanesulfonic acid (2706-91-4)
	Perfluoropentanoic acid (PFPeA) (2706-90-3)
	Perfluoroundecanoic acid (PFUnA) (2058-94-8)

Conc. in Solvent	CRM?	Min Shelf Life on Ship Date	Max Shelf Life on Ship Date	Shipping Conditions	Storage Temp.	qty.	cat. #
EPA 533 PFAS Calibration Standard							
2 µg/mL, Methanol (1 mM KOH), 1 mL/ampul	Yes	6 months	60 months	Ambient	0 °C or colder	ea.	30736

*Technical grade compound containing both branched and linear isomers; see certificate for details.

EPA 537.1 PFAS Calibration Standard

(18 components)

- 18-component mix simplifies calibration complexity, saving time and reducing cost.
- Specifically formulated to meet EPA 537.1 method requirements.
- Verified composition and stability ensure long lasting shelf-life.
- Two independently produced lots available.
- Ideal for the analysis of PFAS in water and other matrices.



11-chloroicosafuoro-3-oxaundecane-1sulfonic acid (11Cl-PF3OUdS) (763051-92-9)	Perfluorobutanesulfonic acid (PFBS) (375-73-5)
4,8-dioxa-3H-perfluorononanoic acid (ADONA) (919005-14-4)	Perfluorodecanoic acid (PFDA) (335-76-2)
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS) (756426-58-1)	Perfluorododecanoic acid (PFDOA) (307-55-1)
2-(Heptafluoropropoxy)2,3,3-tetrafluoropropionic acid (HFPO-DA) (13252-13-6)	Perfluoroheptanoic acid (PFHpA) (375-85-9)
N-ethylperfluoro-1-octanesulfonamidoacetic acid (NETFOS-AA)* (2991-50-6)	Perfluorohexanesulfonic acid (PFHxS)* (355-46-4)
N-methylperfluoro-1-octanesulfonamidoacetic acid (NMe-FOSAA)* (2355-31-9)	Perfluorohexanoic acid (PFHxA) (307-24-4)
	Perfluorononanoic acid (PFNA) (375-95-1)
	Heptadecafluorooctanesulfonic acid (PFOS)* (1763-23-1)
	Perfluorooctanoic acid (PFOA)* (335-67-1)
	Perfluorotetradecanoic acid (PFTeDA) (376-06-7)
	Perfluorotridecanoic acid (PFTrDA) (72629-94-8)
	Perfluoroundecanoic acid (PFUnA) (2058-94-8)

Conc. in Solvent	CRM?	Min Shelf Life on Ship Date	Max Shelf Life on Ship Date	Shipping Conditions	Storage Temp.	qty.	cat. #
EPA 537.1 PFAS Calibration Standard							
2 µg/mL, Methanol (1 mM KOH), 1 mL/ampul	Yes	6 months	60 months	Ambient	0 °C or colder	ea.	30735

*Technical grade compound containing both branched and linear isomers; see certificate for details.

PFAS 24 Calibration Standard

(24 components)

- 24-component mix simplifies calibration complexity, saving time and reducing cost.
- Verified composition and stability ensure long lasting shelf-life.
- Two independently produced lots available.
- Ideal for the analysis of PFAS in water and other matrices.
- Meets EPA 8327 method requirements.



1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS) (39108-34-4)
 1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) (757124-72-4)
 1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS) (27619-97-2)
 N-ethylperfluoro-1-octanesulfonamidoacetic acid (NETFOS-AA) (2991-50-6)
 N-methylperfluoro-1-octanesulfonamidoacetic acid (NMe-FOSAA) (2355-31-9)
 Perfluoro-1-decanesulfonic acid (PFDS) (335-77-3)
 Perfluoro-1-nonanesulfonic acid (PFNS) (68259-12-1)
 Perfluoro-1-octanesulfonamide (FOSA) (754-91-6)
 Perfluoro-1-pentanesulfonic acid (PFPeS) (2706-91-4)
 Perfluorobutanesulfonic acid (PFBS) (375-73-5)

Perfluorobutanoic acid (PFBA) (375-22-4)
 Perfluorodecanoic acid (PFDA) (335-76-2)
 Perfluorododecanoic acid (PFDOA) (307-55-1)
 Perfluoroheptanesulfonic acid (PFHpS) (375-92-8)
 Perfluoroheptanoic acid ((PFHpA) (375-85-9)
 Perfluorohexanesulfonic acid (PFHxS)* (355-46-4)
 Perfluorohexanoic acid ((PFHxA) (307-24-4)
 Perfluorononanoic acid (PFNA) (375-95-1)
 Heptadecafluorooctanesulfonic acid (PFOS)* (1763-23-1)
 Perfluorooctanoic acid (PFOA)* (335-67-1)
 Perfluoropentanoic acid (PFPeA) (2706-90-3)
 Perfluorotetradecanoic acid (PFTeDA) (376-06-7)
 Perfluorotridecanoic acid (PFTrDA) (72629-94-8)
 Perfluoroundecanoic acid (PFUnA) (2058-94-8)

Conc. in Solvent	CRM?	Min Shelf Life on Ship Date	Max Shelf Life on Ship Date	Shipping Conditions	Storage Temp.	qty.	cat.#
PFAS 24 Calibration Standard							
1 µg/mL, Methanol (1 mM KOH)/2-Propanol (98:2), 1 mL/ampul	Yes	6 months	60 months	Ambient	0 °C or colder	ea.	30733

*Technical grade compound containing both branched and linear isomers; see certificate for details.