Lab Supplies for PFAS Analysis

Methods-Based Reference to Lab Supplies for PFAS Testing

PFAS "forever chemicals" are ubiquitous in the environment, but they are also commonly found in lab supplies and even in instruments, so it is essential to prevent background sources from contaminating samples. PFAS can also be "sticky" and adhere to certain materials that are regularly used in sampling and analysis (e.g., glass containers or pipettes), so everything in the sample flow path must be considered for its ability to either contribute background PFAS or to retain PFAS that is present in samples.

The risk of PFAS contamination or retention can make choosing the right lab supplies for PFAS analysis difficult, but it is also challenging because many methods are available, and they use different sample preparation and analysis products. Selecting suitable lab supplies is even harder when you want to measure trace levels of PFAS that are not listed in current government methods or guidelines, such as short- and ultrashort-chain PFAS.

Finding suitable products can be simplified using the product guide tables on the following pages, which detail the lab supplies for PFAS analysis that are appropriate for widely accepted test methods from around the world, including U.S. agencies (CDC, EPA, FDA, and USDA); European agencies (DIN); and international standards (ASTM and ISO). After selecting method-appropriate products, be sure to evaluate your system and supplies to ensure they are free of target analytes 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 for PFAS testing and expert technical support for the analysis of legacy, alternative, and ultrashort-chain PFAS across a wide range of global testing standards. Visit **www.restek.com/PFAS** to explore more resources for PFAS analysis. In addition, if you want to see results before setting foot in the lab, you can model PFAS methods in minutes from your desk using our free, online Pro *EZ*LC chromatogram modeler.

Lab Supplies for PFAS Analysis

ANALYSIS

	EPA 537.1	EPA 533	EPA 1633	EPA OTM 45	EPA 8327	USDA CLG-PFAS 2.04	CDC 6304.09	US FDA C-010.03	DIN EN 17892*	DIN 38407-42	ISO 21675:2019	ISO 23702-1:2023	ASTM D7968-23	ASTM D7979-20	ASTM D8421-22
C18 PHASE COLUMNS															
PFAS delay column: 5 µm, 50 x 2.1 mm (cat.# 27854)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PFAS delay column: 5 µm, 50 x 3.0 mm (cat.# 580959 [custom product])	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Force C18 FPP column: 1.8 µm, 50 x 2.1 mm (cat.# 9634252)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Raptor C18 SPP column: 2.7 µm, 50 x 2.1 mm (cat.# 9304A52)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
More C18 column dimensions are available at www.restek.com															
SPECIALTY PHASE COLUMNS															
Raptor Polar X: 2.7 µm, 50 x 2.1 mm (cat.# 9311A52)	Ideal for ultrashort-chain (C1-C3) PFAS analysis with isocratic methods.														
Ultra IBD: 3 µm, 100 x 2.1 mm (cat.# 9175312)	Ideal for ultrashort-, short-, mid-, and long-chain PFAS analysis (C1 - C14) with gradient methods.														
GUARD COLUMNS															
UltraShield UHPLC precolumn filter: 0.2 µm frit (cat.# 25809)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
EXP direct connect holder for EXP guard cartridges (cat.# 25808)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Raptor C18 EXP guard column cartridge: 2.7 µm, 5 x 2.1 mm (cat.# 9304A0252)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

NOTE: Some products shown above may not exactly match the product description in the methods.

*DIN EN 17892 lists columns of the following dimensions in the appendix: Force C18 FPP column: 1.8 µm, 100 x 3.0 mm (cat.# 963421E) and Raptor C18 SPP column: 2.7 µm, 100 x 2.1 mm (cat.# 9304A12).

STANDARDS

For detailed compound lists, view these products on www.restek.com.

	EPA 537.1	EPA 533	EPA 1633	EPA OTM 45	EPA 8327	USDA CLG-PFAS 2.04	CDC 6304.09	US FDA C-010.03	DIN EN 17892	DIN 38407-42	ISO 21675:2019	ISO 23702-1:2023	ASTM D7968-23	ASTM D7979-20	ASTM D8421-22
PFAS 24 calibration standard: 1 µg/mL, methanol (1 mM KOH) (cat.# 30733)	-	X	-	-	-	-	-	-	-	X	-	-	-	-	-
PFAS 28 calibration standard: 1 µg/mL, methanol (1 mM KOH) (cat.# 30734)	-	X	-	-	-	-	-	-	-	X	-	-	-	-	-
EPA 537.1 PFAS calibration standard: 2 µg/mL, methanol (1 mM KOH) (cat.# 30735)	X	-	-	-	X	-	-	-	-	-	-	-	-	-	-
EPA 533 PFAS calibration standard: 2 µg/mL, methanol (1 mM KOH) (cat.# 30736)	-	X	-	-	X	-	-	-	-	X	-	-	-	-	-

NOTE: Some products shown above may not exactly match the product description in the methods.

SAMPLE HANDLING

Product Category	Description	EPA 537.1	EPA 533	EPA 1633	EPA OTM 45	EPA 8327	USDA CLG-PFAS 2.04	CDC 6304.09	US FDA C-010.03	DIN EN 17892	DIN 38407-42	ISO 21675:2019	ISO 23702-1:2023	ASTM D7968-23	ASTM D7979-20	ASTM D8421-22
PRE-SCREENING OR FILTRATION OF PARTICULATE-CONTAINING SAMPLES																
Syringe filters	30 mm syringe filter: 0.45 µm, nylon (cat.# 23981)	-	-	X	-	X	-	-	X	-	X	X	-	-	-	-
	30 mm syringe filter: 0.22 µm, nylon (cat.# 23980)	-	-	X	-	X	-	-	X	-	X	X	-	-	-	-
	25 mm syringe filter: 0.22 µm, polypropylene (cat.# 28935)	-	-	-	-	-	-	-	-	-	-	-	X	X	X	X
Glass wool	Deactivated borosilicate glass wool (cat.# 20789)	-	-	X	X	-	-	-	-	-	-	-	-	-	-	-
Filter Vials	Thomson SINGLE StEP standard filter vials with screw-top caps: 0.2 µm, nylon w/preslit cap (cat.# 27896)	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
	Thomson SINGLE StEP nano filter vials: 0.2 µm, nylon w/preslit cap (cat.# 25886)†	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-
	More filter vial materials and formats are available at www.restek.com															
SAMPLE COLLECTION, TRANSFER, AND EXTRACTION																
SPE (WAX)	Resprep PFAS SPE cartridge: 6 mL, WAX 150 mg/GCB 50 mg (cat.# 28930)	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
	Resprep PFAS SPE cartridge with filter aid: 6 mL, filter aid 2000 mg/WAX 150 mg/GCB 50 mg (cat.# 28931)	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
	Resprep polymeric SPE cartridge: WAX, 6 mL/500 mg, 30 µm (cat.# 28268)	-	X	X	X	-	-	-	X	X	X	X	-	-	-	-
	Resprep polymeric SPE cartridge: WAX, 6 mL/200 mg, 30 µm (cat.# 28292)	-	X	X	X	-	-	-	X	X	X	X	-	-	-	-
	Resprep polymeric SPE cartridge: WAX, 3 mL/60 mg, 30 µm (cat.# 28468)	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
	More WAX SPE configurations are available at www.restek.com															
SPE (S-DVB)	Resprep S-DVB SPE cartridge: 6 mL/500 mg (cat.# 28937)	X	-	-	-	-	-	*	-	X	-	-	-	-	-	-
Polypropylene sample reservoir	Polypropylene sample reservoir: 75 mL (cat.# 26015)	X	X	X	-	-	-	-	-	X	X	X	-	-	-	-
Polypropylene connectors	Polypropylene connectors (cat.# 26007)	X	X	X	-	-	-	-	-	X	X	X	-	-	-	-
QuEChERS extraction salts	Q-sep QuEChERS extraction salt packets only (original): 6 g $MgSO_4$, 1.5 g NaCl (cat.# 582025 [custom product])	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-
	More QuEChERS products available at www.restek.com															
Centrifuge	Q-sep multispeed centrifuge for QuEChERS (cat.# 28295)	-	-	X	-	-	X	-	X	X	-	X	X	X	-	-
Resins	Rezin certified clean SDVB resin (cat.# 27242)	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-
	Ultra-Clean resin (cat.# 24230)	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-
Vacuum manifold	Resprep QR-24 vacuum manifold (cat.# 28299-VM)	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
	Resprep QR-12 vacuum manifold (cat.# 28298-VM)	X	X	X	X	X	X	X	X	X	X	X	X	-	-	-
Vacuum pumps	Chemker 300 PTFE vacuum pump: 20 L/min, AC110 V, 60 Hz (cat.# 27426)	X	X	X	X	X	X	*	X	X	X	X	X	-	-	-
	Chemker 300 PTFE vacuum pump: 18 L/min, AC220 V, 50 Hz (cat.# 27427)	X	X	X	X	X	X	*	X	X	X	X	X	-	-	-

NOTE: Some products shown above may not exactly match the product description in the methods.
* This CDC method is based on automated online SPE using C8 or C18 SPE materials. The product shown here is recommended for off-line SPE.
† This U.S. FDA method uses nano filter vial without caps. Cat#. 25886 comes with preslit caps, but polyethylene caps (cat.#s 23244 and 23247) can be ordered separately.
X A regenerated cellulose filter is mentioned in the method. However, nylon and polypropylene are widely accepted filter membrane materials for PFAS analysis.
X A glass fiber filter is mentioned in the method. However, nylon and polypropylene are widely accepted filter membrane materials for PFAS analysis.

GENERAL LAB SUPPLIES

	EPA 537.1	EPA 533	EPA 1633	EPA OTM 45	EPA 8327	USDA CLG-PFAS 2.04	CDC 6304.09	US FDA C-010.03	DIN EN 17892	DIN 38407-42	ISO 21675:2019	ISO 23702-1:2023	ASTM D7968-23	ASTM D7979-20	ASTM D8421-22
Polypropylene vials: 100-pk. (cat.# 23243)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Polypropylene vials: 1000-pk. (cat.# 23246)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Polyethylene vial caps: 100-pk. (cat.# 23244)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Polyethylene vial caps: 1000-pk. (cat.# 23247)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Centrifuge tubes: 50 mL, 50-pk. (cat.# 25846)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Centrifuge tubes: 50 mL, 500-pk. (cat.# 28290)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Norm-Ject plastic syringe: 10 mL Luer Lock tip (cat.# 22775)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Norm-Ject plastic syringe: 5 mL Luer Lock tip (cat.# 22774)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

NOTE: Some products shown above may not exactly match the product description in the methods.
X ASTM methods refer to the use of a glass syringe. Norm-Ject plastic syringes are made from polypropylene/polyethylene and can be used as an alternative.

Recommended Products for Volatile Fluorinated Compounds (VFCs) Analysis by U.S. EPA OTM-50 (GC-MS)

	EPA OTM-50
SAMPLE COLLECTION/TRANSPORT	
SilcoCan Air Sampling Canister, 6 L, with 3-Port Siltek-Treated RAVE+ Valve with Gauge (cat.# 27309)	X
SilcoCan Air Sampling Canister, 6 L, with 2-Port Siltek-Treated RAVE+ Valve (cat.# 27307)	X
SilcoCan Air Sampling Canister, 6 L, No Valve (cat.# 22092)	X
TO-Can air sampling canister, 6 L, with 3-port RAVE+ valve with gauge (cat.# 27319)	X
TO-Can air sampling canister, 6 L, with 2-port RAVE+ valve (cat.# 27318)	X
TO-Can air sampling canister, 6 L, no valve (cat.# 22096)	X

References

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