

## Per- and polyfluoroalkyl substances (PFAS) analysis

PFAS have been used in industry and consumer products since the 1940s and have been widely detected in drinking water, wastewater, ground and surface water, soil, and other complex matrices. Their chain of strong fluorine-carbon bonds makes these chemicals persistent and bio-accumulative over long-term exposure—linking them to health hazards in humans and wildlife.\*

More than 4,000 PFAS are known to currently have been used, and this list continues to expand. In response, regulatory agencies worldwide are implementing more stringent requirements for monitoring and identifying PFAS. For example:

- The EU has an environmental quality standard of 0.65 ng/L in water bodies for PFOS, and anticipate similarly low reporting levels for PFOA in water.
- The US EPA safe drinking water guidelines for PFOS and PFOA are not to exceed 70 ng/L. However, several regulatory and municipal bodies require monitoring and detection of PFAS at low single digit ng/L levels in water and soil.
- Many countries in Asia, including Japan, South Korea and Australia also have guidance levels for PFOS and PFOA.

You can achieve uncompromising accuracy for rigorous regulatory methods with Agilent PFAS analysis solutions. Our InfinityLab PFC-free HPLC conversion kit includes everything you need to ensure your 1290 Infinity II instruments and 1290 Infinity II high-speed pump are free of PFAS contaminants:

- Tubing
- Inline filter
- Wash bottle head assembly
- Delay column with InfinityLab Quick Connect LC fitting

Agilent's PFAS solution includes products for sample preparation, HPLC columns and solvents as well as PFC-free sample containment and other HPLC supplies you would need to ensure reproducible results with highest quality while eliminating PFAS contamination and reduced the risk of false positive results.



\*L. Ahrens, M. Bundschuh. Fate and effects of poly- and perfluoroalkyl substances in the aquatic environment: A review. *Environ. Toxicol. Chem.*, 2014, 33, 1921–1929.

## Easy Selection and Ordering Information

This guide provides recommendations for Agilent products by regulatory method, so you can find what you're looking for quickly. To add items to your "Favorite Products"\* list at the Agilent online store, simply click the MyList links in each header below. Then, enter the quantities for the products you need. Your list will remain under "Favorite Products" for your use with future orders.

**EPA 537 or similar:** Determination of PFAS in drinking water by SPE and LC/MS/MS (EPA 537.1 or similar)

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Product Category	Description	Part Number
Sample preparation	Bond Elut LMS cartridge, 500 mg, 6 mL, 30/pk	12255021
	Bond Elut Adapter cap for 1, 3 and 6 mL Bond Elut cartridges (15/pk)	12131001
	Bond Elut Empty SPE cartridge 60 mL (100/pk)	12131012
	15 mL Centrifuge tubes and caps, 50/pk	5610-2039
	Collection rack and funnel set for 12 or 15 mL conical tubes, for Vac Elut SPS 24 Manifold	12234027
	Vac Elut SPS 24 Manifold with collection rack for 10 x 75 mm test tubes	12234003
Guard column	ZORBAX RRHD Eclipse Plus C18 2.1 x 5 mm, 1.8 µm guard	821725-901
Separation column	ZORBAX RRHD Eclipse Plus C18, 2.1x100mm, 1.8 µm	959758-902
PFC-free LC kit w/ delay column	InfinityLab PFC-free HPLC Conversion Kit	5004-0006
Delay column	InfinityLab PFC Delay Column, 4.6 x 30 mm, 1200 bar (replacement)	5062-8100
Other LC supplies	InfinityLab Quick Connect assembly, 0.12 x 105 mm, for column inlet connection on UHPLC	5067-5957
	InfinityLab Quick Connect assembly, 0.17 x 105 mm, for column inlet connection on UHPLC	5067-6166
	InfinityLab Quick Turn fitting, for column outlet	5067-5966
	Quick Turn capillary 0.12 x 280 mm, for connection from column to detector	5500-1191
	Kit of Stay Safe waste cap GL45 with 4 ports and waste can 6L	5043-1221
	Charcoal filter with time strip for waste container	5043-1193
	Stainless steel solvent inlet filter, 10µm pore size	01018-60025
Solvent filtration assembly*	InfinityLab solvent filtration assembly, includes glass funnel, 250 mL, membrane holder glass base, glass flask, 1 L, and aluminum clamp	5191-6776
	Regenerated Cellulose Filter membrane 47mm, 0.20µm 100/pk	5191-4340
Sample containment	2 mL polypropylene snap style vials (100/pk)	5182-0567
	Clear snap style caps with polypropylene septa (100/pk)	5182-0542
	2 mL polypropylene screw style vials (100/pk)	5191-8150
	9mm screw style cap with polypropylene/silicone screw septa (100/pk)	5191-8151
Solvents	InfinityLab ultrapure LC/MS water	5191-4498

\* Prefiltered solvents can be a source of PFAS contamination. Use the InfinityLab Solvent Filtration assembly to filter non-filtered solvents for PFAS analysis.

**EPA 533 or similar:** Determination of PFAS in drinking water by SPE and LC/MS/MS (short-chain PFAS) [View MyList](#)

Product Category	Description	Part Number
Sample preparation	SampliQ WAX polymer 6 mL cartridges, 150 mg, 30 µm (30/pk)*	5982-3667
	Bond Elut Adapter cap for 1, 3 and 6 mL Bond Elut cartridges (15/pk)	12131001
	Bond Elut Empty SPE cartridge 60 mL (100/pk)	12131012
	15 mL Centrifuge tubes and caps, 50/pk	5610-2039
	Collection rack and funnel set for 12 or 15 mL conical tubes, for Vac Elut SPS 24 Manifold	12234027
	Vac Elut SPS 24 Manifold with collection rack for 10 x 75 mm test tubes	12234003
Guard column	ZORBAX RRHD Eclipse Plus C18 2.1 x 5 mm, 1.8 µm guard	821725-901
Separation column	ZORBAX RRHD Eclipse Plus C18, 2.1x50mm, 1.8 µm	959757-902
PFC-free LC kit w/ delay column	InfinityLab PFC-free HPLC Conversion Kit	5004-0006
Delay column	InfinityLab PFC Delay Column, 4.6 x 30 mm, 1200 bar (replacement)	5062-8100
Other LC supplies	InfinityLab Quick Connect assembly, 0.12 x 105 mm, for column inlet connection on UHPLC	5067-5957
	InfinityLab Quick Connect assembly, 0.17 x 105 mm, for column inlet connection on UHPLC	5067-6166
	InfinityLab Quick Turn fitting, for column outlet	5067-5966
	Quick Turn capillary 0.12 x 280 mm, for connection from column to detector	5500-1191
	Kit of Stay Safe waste cap GL45 with 4 ports and waste can 6L	5043-1221
	Charcoal filter with time strip for waste container	5043-1193
	Stainless steel solvent inlet filter, 10µm pore size	01018-60025
Solvent filtration assembly**	InfinityLab solvent filtration assembly, includes glass funnel, 250 mL, membrane holder glass base, glass flask, 1 L, and aluminum clamp	5191-6776
	Regenerated Cellulose Filter membrane 47mm, 0.20µm 100/pk	5191-4340
Sample containment	2 mL polypropylene snap style vials (100/pk)	5182-0567
	Clear snap style caps with polypropylene septa (100/pk)	5182-0542
	2 mL polypropylene screw style vials (100/pk)	5191-8150
	9mm screw style cap with polypropylene/silicone screw septa (100/pk)	5191-8151
Solvents	InfinityLab Ultrapure LCMS Water	5191-4498

\* For better recoveries rinse with 10 mL of the elution solvent (2% ammonium hydroxide in methanol) before conditioning with phosphate buffer.

\*\* Prefiltered solvents can be a source of PFAS contamination. Use the InfinityLab Solvent Filtration assembly to filter non-filtered solvents for PFAS analysis.

**EPA 8327:** Determination of PFAS in groundwater, surface water, and wastewater samples using direct injection and LC/MS/MS [View MyList](#)

Product Category	Description	Part Number
Sample preparation	Captiva Premium Syringe Filter, polypropylene housing, regenerated cellulose (RC) membrane, 25 mm diameter, 0.2 µm pore size, 100/pk	5190-5110
	Captiva Disposable Syringe, 10 mL, 100/pk	9301-6474
	15 mL Centrifuge tubes and caps, 50/pk	5610-2039
Guard column	ZORBAX RRHD Stable Bond C18, 2.1 mm, 1.8 µm, UHPLC guard (3/pk)	821725-902
Separation column	ZORBAX RRHD Stable Bond C18, 2.1 x 100 mm and 1.8 µm particle size	858700-902
PFC-free LC kit w/ delay column	InfinityLab PFC-free HPLC Conversion Kit	5004-0006
Delay column	InfinityLab PFC Delay Column, 4.6 x 30 mm, 1200 bar (replacement)	5062-8100
Other LC supplies	InfinityLab Quick Connect assembly, 0.12 x 105 mm, for column inlet connection on UHPLC	5067-5957
	InfinityLab Quick Connect assembly, 0.17 x 105 mm, for column inlet connection on UHPLC	5067-6166
	InfinityLab Quick Turn fitting, for column outlet	5067-5966
	Quick Turn capillary 0.12 x 280 mm, for connection from column to detector	5500-1191
	Kit of Stay Safe waste cap GL45 with 4 ports and waste can 6L	5043-1221
	Charcoal filter with time strip for waste container	5043-1193
	Stainless steel solvent inlet filter, 10µm pore size	01018-60025
Solvent filtration assembly*	InfinityLab solvent filtration assembly, includes glass funnel, 250 mL, membrane holder glass base, glass flask, 1 L, and aluminum clamp	5191-6776
	Regenerated Cellulose Filter membrane 47mm, 0.20µm 100/pk	5191-4340
Sample containment	2 mL polypropylene snap style vials (100/pk)	5182-0567
	Clear snap style caps with polypropylene septa (100/pk)	5182-0542
	2 mL polypropylene screw style vials (100/pk)	5191-8150
	9mm screw style cap with polypropylene/silicone screw septa (100/pk)	5191-8151
Solvents	InfinityLab Ultrapure LCMS Water	5191-4498

\* Prefiltered solvents can be a source of PFAS contamination. Use the InfinityLab Solvent Filtration assembly to filter non-filtered solvents for PFAS analysis.

**ASTM D7979:** Determination of PFAS in water sludge, influent, effluent, and wastewater using LC/MS/MS

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Product Category	Description	Part Number
Sample preparation	Captiva Premium Syringe Filter, polypropylene housing, regenerated cellulose (RC) membrane, 25 mm diameter, 0.2 µm pore size, 100/pk	5190-5110
	Captiva Disposable Syringe, 10 mL, 100/pk	9301-6474
	15 mL Centrifuge tubes and caps, 50/pk	5610-2039
Guard column A	ZORBAX RRHD StableBond Aq, 2.1 mm, 1.8 µm, UHPLC guard (3/pk)	821725-936
Separation column A	ZORBAX RRHD Stablebond-Aq, 2.1x100 mm, 1.8 µm	859700-914
Guard column B	ZORBAX RRHD Eclipse Plus C18, 2.1 mm, 1.8 µm, UHPLC guard (3/pk)	821725-901
Separation column B	ZORBAX RRHD Eclipse Plus C18, 2.1x100mm, 1.8 µm	959758-902
PFC-free LC kit w/ delay column	InfinityLab PFC-free HPLC Conversion Kit	5004-0006
Delay column	InfinityLab PFC Delay Column, 4.6 x 30 mm, 1200 bar (replacement)	5062-8100
Other LC supplies	InfinityLab Quick Connect assembly, 0.12 x 105 mm, for column inlet connection on UHPLC	5067-5957
	InfinityLab Quick Connect assembly, 0.17 x 105 mm, for column inlet connection on UHPLC	5067-6166
	InfinityLab Quick Turn fitting, for column outlet	5067-5966
	Quick Turn capillary 0.12 x 280 mm, for connection from column to detector	5500-1191
	Kit of Stay Safe waste cap GL45 with 4 ports and waste can 6L	5043-1221
	Charcoal filter with time strip for waste container	5043-1193
	Stainless steel solvent inlet filter, 10µm pore size	01018-60025
Solvent filtration assembly*	InfinityLab solvent filtration assembly: includes glass funnel (250 mL), membrane holder glass base, glass flask (1 L), and aluminum clamp	5191-6776
	Regenerated cellulose filter membrane (47 mm, 0.20 µm, 100/pk)	5191-4340
Sample containment	2 mL polypropylene snap style vials (100/pk)	5182-0567
	Clear snap style caps with polypropylene septa (100/pk)	5182-0542
	2 mL polypropylene screw style vials (100/pk)	5191-8150
	9mm screw style cap with polypropylene/silicone screw septa (100/pk)	5191-8151
Solvents	InfinityLab Ultrapure LCMS Water	5191-4498

\* Prefiltered solvents can be a source of PFAS contamination. Use the InfinityLab Solvent Filtration assembly to filter non-filtered solvents for PFAS analysis.

**ISO 21675:2019:** Determination of PFAS in nonfiltered waters (drinking, natural, and wastewater) containing < 2 g/L solid particulate material, using LC/MS/MS [View MyList](#)

Product Category	Description	Part Number
Sample preparation	SampliQ WAX polymer 6 mL cartridges, 150 mg, 30 µm (30/pk)*	5982-3667
	Bond Elut Adapter cap for 1, 3 and 6 mL Bond Elut cartridges (15/pk)	12131001
	Bond Elut Empty SPE cartridge 60 mL (100/pk)	12131012
	15 mL Centrifuge tubes and caps, 50/pk	5610-2039
	Collection rack and funnel set for 12 or 15 mL conical tubes, for Vac Elut SPS 24 Manifold	12234027
	Vac Elut SPS 24 Manifold with collection rack for 10 x 75 mm test tubes	12234003
Guard column	Polaris C18-A, MetaGuard, 3 µm, 2.0 mm, 3/pk	A2001MG2
Separation column	Polaris C18 A, 2.0x50 mm, 3 µm	A2001050X020
PFC-free LC kit w/ delay column	InfinityLab PFC-free HPLC Conversion Kit	5004-0006
Delay column	InfinityLab PFC Delay Column, 4.6 x 30 mm, 1200 bar (replacement)	5062-8100
Other LC supplies	InfinityLab Quick Connect assembly, 0.12 x 105 mm, for column inlet connection on UHPLC	5067-5957
	InfinityLab Quick Connect assembly, 0.17 x 105 mm, for column inlet connection on UHPLC	5067-6166
	InfinityLab Quick Turn fitting, for column outlet	5067-5966
	Quick Turn capillary 0.12 x 280 mm, for connection from column to detector	5500-1191
	Kit of Stay Safe waste cap GL45 with 4 ports and waste can 6L	5043-1221
	Charcoal filter with time strip for waste container	5043-1193
	Stainless steel solvent inlet filter, 10µm pore size	01018-60025
Solvent filtration assembly**	InfinityLab solvent filtration assembly, includes glass funnel, 250 mL, membrane holder glass base, glass flask, 1 L, and aluminum clamp	5191-6776
	Regenerated Cellulose Filter membrane 47mm, 0.20µm 100/pk	5191-4340
Sample containment	2 mL polypropylene snap style vials (100/pk)	5182-0567
	Clear snap style caps with polypropylene septa (100/pk)	5182-0542
	2 mL polypropylene screw style vials (100/pk)	5191-8150
	9mm screw style cap with polypropylene/silicone screw septa (100/pk)	5191-8151
Solvents	InfinityLab Ultrapure LCMS Water	5191-4498

\* For better recoveries rinse with 10 mL of the elution solvent (2% ammonium hydroxide in methanol) before conditioning with phosphate buffer.

\*\* Prefiltered solvents can be a source of PFAS contamination. Use the InfinityLab Solvent Filtration assembly to filter non-filtered solvents for PFAS analysis.

## Future-Proof your Lab to Address the growing List of PFAS

Use a single Analytical method to simultaneously quantify both legacy and emerging PFAS, including diPAPs, ADONA, and PFESAs (components of F-53B). Take advantage of the enhanced sensitivity of the 6495 LC/TQ to analyze all these PFAS in one injection without compromising detection levels. Please reference application note [5994-0919EN](#).

**Application note 5994-0919EN:** Analysis of >50 Legacy and Emerging PFAS in Water Using the Agilent 6495B Triple Quadrupole LC/MS [View MyList](#)

Product Category	Description	Part Number
Sample preparation	SampliQ WAX polymer 6 mL cartridges, 150 mg, 30 µm (30/pk)*	5982-3667
	Bond Elut Adapter cap for 1, 3 and 6 mL Bond Elut cartridges (15/pk)	12131001
	Bond Elut Empty SPE cartridge 60 mL (100/pk)	12131012
	15 mL Centrifuge tubes and caps, 50/pk	5610-2039
	Collection rack and funnel set for 12 or 15 mL conical tubes, for Vac Elut SPS 24 Manifold	12234027
	Vac Elut SPS 24 Manifold with collection rack for 10 x 75 mm test tubes	12234003
Guard column	ZORBAX RRHD Eclipse Plus C18, 2.1 mm, 1.8 µm, UHPLC guard (3/pk)	821725-901
Separation column	ZORBAX RRHD Eclipse Plus C18, 2.1x50mm, 1.8 µm	959757-902
PFC-free LC kit w/ delay column	InfinityLab PFC-free HPLC Conversion Kit	5004-0006
Delay column	InfinityLab PFC Delay Column, 4.6 x 30 mm, 1200 bar (replacement)	5062-8100
Other LC supplies	InfinityLab Quick Connect assembly, 0.12 x 105 mm, for column inlet connection on UHPLC	5067-5957
	InfinityLab Quick Connect assembly, 0.17 x 105 mm, for column inlet connection on UHPLC	5067-6166
	InfinityLab Quick Turn fitting, for column outlet	5067-5966
	Quick Turn capillary 0.12 x 280 mm, for connection from column to detector	5500-1191
	Kit of Stay Safe waste cap GL45 with 4 ports and waste can 6L	5043-1221
	Charcoal filter with time strip for waste container	5043-1193
	Stainless steel solvent inlet filter, 10µm pore size	01018-60025
Solvent filtration assembly**	InfinityLab solvent filtration assembly, includes glass funnel, 250 mL, membrane holder glass base, glass flask, 1 L, and aluminum clamp	5191-6776
	Regenerated Cellulose Filter membrane 47mm, 0.20µm 100/pk	5191-4340
Sample containment	2 mL polypropylene snap style vials (100/pk)	5182-0567
	Clear snap style caps with polypropylene septa (100/pk)	5182-0542
	2 mL polypropylene screw style vials (100/pk)	5191-8150
	9mm screw style cap with polypropylene/silicone screw septa (100/pk)	5191-8151
Solvents	InfinityLab Ultrapure LCMS Water	5191-4498

\* For better recoveries rinse with 10 mL of the elution solvent (2% ammonium hydroxide in methanol) before conditioning with phosphate buffer.

\*\* Prefiltered solvents can be a source of PFAS contamination. Use the InfinityLab Solvent Filtration assembly to filter non-filtered solvents for PFAS analysis.

Quickly build targeted screening and quantitation methods using the Agilent PFAS MRM database for LC/TQ with more than 100 native and isotopically labeled PFAS compounds. The table below lists the column and supplies [View MyList](#) that were used when testing the example method provided with the database. Learn more about the [PFAS MRM database](#).

Product Category	Description	Part Number
Sample preparation	Follow EPA Method 533 or 537.1 sample preparation protocols	
Guard column	ZORBAX RRHD Eclipse Plus C18, 2.1 mm, 1.8 µm, 1200 bar pressure limit, UHPLC guard, 3/pk	821725-901
Separation column	ZORBAX RRHD Eclipse Plus C18, 95Å, 2.1 x 100 mm, 1.8 µm, 1200 bar pressure limit	959757-902
PFC-free LC kit w/ delay column	InfinityLab PFC-free HPLC Conversion Kit	5004-0006
Delay column	InfinityLab PFC Delay Column, 4.6 x 30 mm, 1200 bar (replacement)	5062-8100
Other LC supplies	InfinityLab Quick Connect assembly, 0.12 x 105 mm, for column inlet connection on UHPLC	5067-5957
	InfinityLab Quick Connect assembly, 0.17 x 105 mm, for column inlet connection on UHPLC	5067-6166
	InfinityLab Quick Turn fitting, for column outlet	5067-5966
	Quick Turn capillary 0.12 x 280 mm, for connection from column to detector	5500-1191
	Kit of Stay Safe waste cap GL45 with 4 ports and waste can 6L	5043-1221
	Charcoal filter with time strip for waste container	5043-1193
	InfinityLab solvent bottle, clear, 1000 mL, with cap	9301-6528
	Tubing, PEEK, solid color red, 1/16 in. OD x 0.005 in. ID, 10 feet length, 1/pk	AL35720
	Stainless steel solvent inlet filter, 10µm pore size	01018-60025
Solvent filtration assembly*	InfinityLab solvent filtration assembly: includes glass funnel (250 mL), membrane holder glass base, glass flask (1 L), and aluminum clamp	5191-6776
	Regenerated Cellulose Filter membrane 47mm, 0.20µm 100/pk	5191-4340
Sample containment	Vial, crimp/snap top polypropylene, 250 µL, 1000/pk: 12x32 mm (11 mm cap)	5190-3155
	Clear snap style caps with polypropylene septa (100/pk)	5182-0542
	2 mL polypropylene screw style vials (100/pk)	5191-8150
	9mm screw style cap with polypropylene/silicone screw septa (100/pk)	5191-8151
Solvents	InfinityLab Ultrapure LCMS Water	5191-4498
PFC Calibration Standard**	PFCs calibration standard	ITA-70

\* Prefiltered solvents can be a source of PFAS contamination. Use the InfinityLab Solvent Filtration assembly to filter non-filtered solvents for PFAS analysis.

\*\* More information at: [www.agilent.com/chem/standards](http://www.agilent.com/chem/standards)



## Agilent CrossLab services

CrossLab is an Agilent capability that integrates services and consumables to support workflow success and important outcomes like improved productivity and operational efficiency. Through CrossLab, Agilent strives to provide insight in every interaction to help you achieve your goals. CrossLab offers method optimization, flexible service plans, and training for all skill levels. We have many other products and services to help you manage your instruments and your lab for best performance.

Learn more about Agilent CrossLab, and see examples of insight that leads to great outcomes, at [www.agilent.com/crosslab](http://www.agilent.com/crosslab)

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