

## Reduce PFAS Background Interference and Contamination in Your Agilent 1260/1290 Infinity II for PFAS Analyses

Potential Sources of PFAS Contamination within the HPLC system include: PTFE tubing, PTFE fittings, and PTFE filters.

### 1. Solvent Line and Pump Modifications

- Replace bottle caps, solvent lines, fittings, and filters to PP, PEEK, and/or SS options

#### SOLVENT LINE MODIFICATION PRODUCTS

PART NO	DESCRIPTION	QTY NEEDED
CT-GL45PPB	Blue polypropylene GL45 bottle cap, 10/pk	1
1534	PEEK tubing, natural, 1/8" OD 0.062 ID, 5 ft length	2
P-331	PEEK 1/4-28 nuts, super flangeless, 1/8" OD tubing	2
P-352	Peek ferrule assembly 1/8" x 3 mm OD	2
01018-60025	Stainless steel inlet filter	2

- Remove any PTFE filter frits from the pump head(s)
- Connect PEEK inlet lines directly to the pump heads (bypass selection valve & degasser)

#### PUMP MODIFICATION PRODUCTS

PART NO	PUMPS	DESCRIPTION	QTY NEEDED
0905-1420	For G1312B, G7112B 1260 binary pumps	Yellow PE seals, 2/pk	1
0905-1719*	For G4220A, G7120A 1290 binary pumps	Yellow PE seals, 1 ea	2
REMOVE	Two PTFE frits (A and B head high pressure filter assembly)		

\* 1290 binary pumps are supplied with yellow seals and will not need to be replaced. Quaternary gradient systems are not supported in this application

### 2. Autosampler Modifications

Replace applicable VESPEL rotor seals for the injection valve with a PEEK seal. VESPEL, as opposed to PEEK, can lead to higher sorption of these more hydrophobic analytes. This has been tested, and does not cause any contamination of the PFAS included in EPA methods 537.1. Replace the PTFE tubing line(s) with PEEK tubing.

#### AUTOSAMPLER MODIFICATION PRODUCTS

PART NO	DESCRIPTION	QTY NEEDED
5068-0209	Rotor seal for injection valve, PEEK, 600 bar for G1367E autosampler	1
1532	1/16" OD, 0.020" ID PEEK tubing, 1.5 M	1 - 2
5023-2533	Extender tool - micro headless nut, required for removing and re-inserting the small knurled fitting that connects the needle to the wash port	1

No changes necessary for: G7167A, G7167B, G7129A. G7129B is Vespel, but there is no known alternative at this time.

### 3. Use PTFE-Free Vials, Caps, and Septa

#### PTFE-FREE VIALS, CAPS & SEPTA

PART NO	DESCRIPTION	QTY NEEDED
CTV-1108P	Polypropylene snap seal vial, 1.5 mL, 1,000/pk	—
CTC-5200M	Clear snap cap with 10 mil PE septa, 1,000/pk	—

#### COLUMNS FOR PFAS ANALYSIS

PART NO	DESCRIPTION	QTY NEEDED
959943-902	Delay column, ZORBAX Eclipse Plus, C18, 4.6 x 50 mm, 3.5 µm	1
959757-302	ZORBAX Eclipse Plus C18, 3.0 x 50 mm; 1.8 µm	1



#### TECH TIP

- PEEK ferrules are very hard and compared to PTFE ferrules require greater force when installing.
- Degassers have significant surface area, are fabricated from fluoropolymer, and will need to be bypassed. It is strongly recommended for users to degas the mobile phase offline in their used reservoir before being installed on the pump.



Replacement parts vary for vialsamplers. Read manuals carefully to determine what comes standard with your instrument.



CTV-1108P

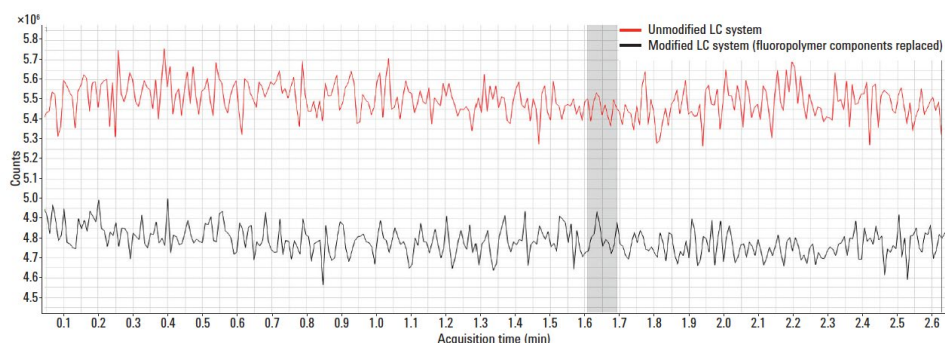


CTC-5200M



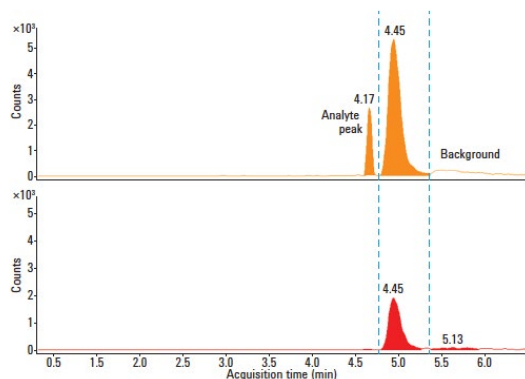


### Figure 1. Reduction in baseline after LC modifications

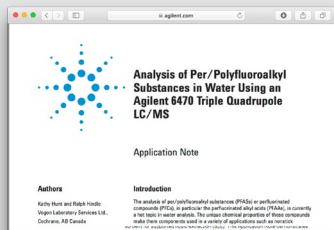
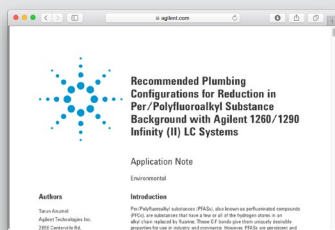


The replacement of PTFE and fluoropolymer parts in the LC stack resulted in significant reduction of background PFAS. Figure 1 shows that, subsequently, the background baseline on the modified LC was also lower than without modification.

### Figure 2. PFOS background peak separation from PFOS in sample with use of the delay column.



A delay column can be installed if the system is used for several different methods that do not allow for the modification of the LC. This column provides separation of PFAS background coming from the LC compared to the analyte across the run. The PFAS compounds can stick to the needle and needle seat, especially with repeated high-concentration injections, and precautions such as a needle and needle seat wash in the method are highly recommended. The modifications shown in this application note can provide extremely sensitive and robust analysis of PFAS in various matrices.



## RESOURCES



[www.chromtech.com/  
customcontent/CT-5991-7863EN.pdf](http://www.chromtech.com/customcontent/CT-5991-7863EN.pdf)  
1260/1290 Plumbing Recommendations for  
PFAS Background Reduction



[www.chromtech.com/  
customcontent/CT-5991-7951EN.pdf](http://www.chromtech.com/customcontent/CT-5991-7951EN.pdf)  
Analysis of Per/Polyfluoroalkyl Substances  
in Water using LC/QQQ