



The Fifth Unregulated Contaminant Monitoring Rule (UCMR 5)

FAQ

UCMR 5 Most Frequent Asked Questions

What is UCMR 5?

Every five years, the Safe Drinking Water Act (SDWA) requires EPA to issuing a list of priority unregulated contaminants to be monitored by certain public water systems serving between 3,300 and 10,000 people across States, Tribes, and Territories. These contaminants may be present in drinking water but are not yet subject to EPA drinking water standards. Under the Unregulated Contaminant Monitoring Rule (UCMR), EPA collects nationally representative drinking water occurrence data to support EPA's future regulatory determinations and assist in the development of national primary drinking water regulations (NPDWRs) as needed. For each UCMR cycle, EPA establishes a new list of contaminants for monitoring, specifies which systems are required to monitor, identifies the sampling locations, and defines the analytical methods to be used.

In December of 2021, the EPA published a revision of the Unregulated Contaminant Monitoring Rule (UCMR 5) for Public Water Systems. This monitoring cycle includes preparations in 2022, sample collection from 2023 – 2025, and completion of data reporting in 2026.

Which water systems will participate in UCMR 5?

Size Category (Number of People Served)	Monitoring Design (CWSs and NTNCWSs) ²	Total # of Systems per Size Category
Small Systems¹ (fewer than 3,300)	Nationally representative sample	800
Small Systems¹ (3,300-10,000)	All systems, if confirmed by EPA	5,147 ³

1. This requirement is based on the availability of appropriations and sufficient laboratory capacity
2. Community Water Systems (CWSs), Non-Transient Non-Community Water Systems (NTNCWSs)
3. Counts are approximate

What resources can help optimize UCMR 5 analysis workflow?

Regulatory entities have developed methods specifically for the determination of PFAS. These workflows use different sample preparation methods, followed by liquid chromatography-tandem mass spectrometry (LC-MS/MS) technologies to detect low concentrations of PFAS compounds in the low ng/L range. However, laboratories continue face challenges in obtaining comprehensive quality data when conducting PFAS analyses.

One of the challenges of PFAS analysis begins with calibration. Certified Reference Materials in a salt form at different concentrations require time-consuming error-prone calculations leading to calibration errors.

Phenomenex has recently launched Phenova CRMs that contain all the mix's analytes in acid form and at the same concentration for easy calculation and dilution. Laboratories using Phenova PFAS CRM reported 50% or more-time savings during PFAS calibration preparation. See the appendix for the complete list of analytes and additional resources for PFAS analysis.



What PFAS compounds need to be reported for UCMR 5?

UCMR 5 specifies monitoring for 29 per- and polyfluoroalkyl substances (PFAS). Below is the complete list according to the EPA UCMR 5 Fact Sheet.

Contaminant	CASRN ¹	MRL ² (µg/L)	Additional Information
25 PFAS: EPA Method 533			
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF30UdS)	763051-92-9	0.005	PFAS are a group of synthetic chemicals used in a wide range of consumer products and industrial applications including: non-stick cookware, water-repellent clothing, stain-resistant fabrics and carpets, cosmetics, firefighting foams, electroplating, and products that resist grease, water, and oil. PFAS are found in the blood of people and animals and in water, air, fish, and soil at locations across the United States and the world.
1H,1H, 2H, 2H-perfluorodecane sulfonic acid (8:2FTS)	39108-34-4	0.005	
1H,1H, 2H, 2H-perfluorohexane sulfonic acid (4:2FTS)	757124-72-4	0.003	
1H,1H, 2H, 2H-perfluorooctane sulfonic acid (6:2FTS)	27619-97-2	0.005	
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	0.003	
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF30NS)	756426-58-1	0.002	
hexafluoropropylene oxide dimer acid (HFPO-DA)(GenX)	13252-13-6	0.005	
nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	151772-58-6	0.02	
perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	113507-82-7	0.003	
perfluoro-3-methoxypropanoic acid (PFMPA)	377-73-1	0.004	
perfluoro-4-methoxybutanoic acid (PFMBA)	863090-89-5	0.003	
perfluorobutanesulfonic acid (PFBS)	375-73-5	0.003	
perfluorobutanoic acid (PFBA)	375-22-4	0.005	
perfluorodecanoic acid (PFDA)	335-76-2	0.003	
perfluorododecanoic acid (PFDoA)	307-55-1	0.003	
perfluoroheptanesulfonic acid (PFHpS)	375-92-8	0.003	
perfluoroheptanoic acid (PFHpA)	375-85-9	0.003	
perfluorohexanesulfonic acid (PFHxS)	355-46-4	0.003	
perfluorohexanoic acid (PFHxA)	307-24-4	0.003	
perfluorononanoic acid (PFNA)	375-95-1	0.004	
perfluorooctanesulfonic acid (PFOS)	1763-23-1	0.004	
perfluorooctanoic acid (PFOA)	335-67-1	0.004	
perfluoropentanesulfonic acid (PFPeS)	2706-91-4	0.004	
perfluoropentanoic acid (PFPeA)	2706-90-3	0.003	
perfluoroundecanoic acid (PFUnA)	2058-94-8	0.002	
4 PFAS: EPA Method 537.1			
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	0.005	See above for PFAS information.
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2355-31-9	0.006	
perfluorotetradecanoic acid (PFTA)	376-06-7	0.008	
perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.007	

1. CASRN – Chemical Abstracts Service Registry Number

2. MRL – Minimum Reporting Level



What is UCMR 5 sampling frequency and timing?

Water systems will be required to collect samples based on the typical UCMR sampling frequency and timeframe.

Water Source	Timeframe	Sampling Frequency
Surface water, ground water under the direct influence of surface water, or mixed sources systems	Year-Round	Systems must monitor 4 times during a consecutive 12-month monitoring period. Sample events must occur 3 months apart.
Ground water systems)	Year-Round	Systems must monitor 2 times during a consecutive 12-month monitoring period. Sample events must occur 5-7 months apart.

References

- [UCMR Website](#) for information on current and past UCMRs, occurrence data, and public meetings
- [EPA Ground Water and Drinking Water Website](#) for information on source water protection, drinking water regulations, monitoring requirements for States and systems, SDWA on Tribal lands, and laboratory certification
- [EPA PFAS Website](#) for information on the Agency’s actions to address PFAS



PFAS Certified Reference Materials for EPA Methods 533 and 537.1

Ordering Information



Part Number	ALO-101939	ALO-101838	ALO-101840	
CRMs are 2µg / mL in Methanol ea. In 1 mL volume				
	CAS RN	EPA 537.1	EPA 533	EPA 533 + 537.1
Perfluoroalkyl carboxylic acid (PFCA)				
Perfluorobutanoic acid (PFBA)	375-22-4	NA	✓	✓
Perfluoropentanoic acid (PFPeA)	2706-90-3	NA	✓	✓
Perfluorohexanoic acid (PFHxA)	307-24-4	✓	✓	✓
Perfluoroheptanoic acid (PFHpA)	375-85-9	✓	✓	✓
Perfluorooctanoic acid (PFOA)	335-67-1	✓	✓	✓
Perfluorononanoic acid (PFNA)	375-95-1	✓	✓	✓
Perfluorodecanoic acid (PFDA)	335-76-2	✓	✓	✓
Perfluoroundecanoic acid (PFUnA)	2058-94-8	✓	✓	✓
Perfluorododecanoic acid (PFDoA)	307-55-1	✓	✓	✓
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	✓	NA	✓
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	✓	NA	✓
Perfluoroalkane sulfonic acid (PFSA)				
Perfluorobutanesulfonic acid (PFBS)	375-73-5	✓	✓	✓
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	NA	✓	✓
Perfluorohexanesulfonic acid - br/lin (PFHxS)	355-46-4	✓	✓	✓
Perfluoroheptanesulfonic acid (PFHpS)	375-92-8	NA	✓	✓
Perfluorooctanesulfonic acid - br/lin (PFOS)	1763-23-1	✓	✓	✓
Perfluoroalkane sulfonamides (FASA) and derivatives				
N-methyl perfluorooctanesulfonamidoacetic acid - br/lin (NMeFOSAA)	2355-31-9	✓	NA	✓
N-ethyl perfluorooctanesulfonamidoacetic acid - br/lin (NEtFOSAA)	2991-50-6	✓	NA	✓
Fluorotelomer sulfonic acid (FTSA)				
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	NA	✓	✓
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	NA	✓	✓
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	NA	✓	✓
Perfluoroalkyl ether carboxylic acid (PFECA)				
Perfluoro-3-methoxypropanoic acid (PFMPA)	377-73-1	NA	✓	✓
Perfluoro-4-methoxybutanoic acid (PFMBA)	863090-89-5	NA	✓	✓
Hexafluoropropylene oxide dimer acid (HFPO-DA/GenX)	13252-13-6	✓	✓	✓
Nonafluoro-3,6-dioxahheptanoic acid (NFDHA)	151772-58-6	NA	✓	✓
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	✓	✓	✓
Polyfluoroalkyl ether sulfonic acid (PFESA)				
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	113507-82-7	NA	✓	✓
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	756426-58-1	✓	✓	✓
11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF30UdS)	763051-92-9	✓	✓	✓

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Select Your PFAS Product by Method

Phenova native PFAS CRM eliminates the need for tedious calculations reducing calibration errors and improving lab throughput.



EPA 533 Specific	Description	Part Number	Feature and Benefit
PFAS CRM 	EPA 533 mix 2 µg / mL in methanol	AL0-101838	Complete native PFAS standards per EPA Method 533 in one vial. All analytes at 2 ppm in Methanol as acids for easy calculation and dilution.
SPE Cartridge (EPA 533) 	Strata™ X-AW 33 µm Polymeric Weak Anion, 500 mg / 6 mL tubes , 30/pk	8B-S038-HCH	A weak anion-exchange functionalized polymeric sorbent that allows for complete retention of acidic compounds with a pKa less than 5, making 100% organic wash conditions possible. A 100% organic wash ensures that the maximum amount of interferences are removed from the target compound.
EPA 537.1 Specific			
PFAS CRM 	EPA 537.1 mix 2 µg / mL in methanol	AL0-101839	Complete native PFAS standards per EPA Method 537.1 in one vial. All analytes at 2 ppm in Methanol as acids for easy calculation and dilution.
PFAS CRM 	EPA 537.1 + EPA 533 mix 2 µg / mL in methanol	AL0-101840	Complete native PFAS standards for both EPA Method 533 and 537.1 in one vial. All analytes at 2 ppm in Methanol as acids for easy calculation and dilution.
SPE Cartridge (EPA 537.1) 	Strata SDB-L 500 mg/6 mL tubes	8B-S014-HCH	A rugged polymer sorbent that is pH stable from 1-14 and offers hydrophobic and aromatic selectivity for reversed phase applications.
Additional PFAS Methods			
<p>From its primary sources in fire suppression foams, industrial discharges and consumer products, PFAS is also widely found to occur in soils, sediments, surface water, groundwater and wastewater discharges, illustrating the widespread dispersion and persistence of this unique class of compounds. Initially many labs have used the DOD QSM 5.3 as guidance for PFAS in non-drinking water matrices. Most recently, EPA 1633 has been published to address these complex matrices.</p>			
DOD / QSM 	Strata PFAS (WAX/GCB) 200 mg, 50 mg, 6 mL tubes, 30/pk	CS0-9207	Strata PFAS is a stacked (WAX/GCB) solid phase extraction cartridge for DOD QSM 5.1/5.3 applications. Reproducible extraction. 2x gains in productivity for sample throughput.
EPA 1633  	Strata-X-AW 33 µm Polymeric Weak Anion, 150 mg / 6 mL tubes , 30/pk	8B-S038-SCH	A weak anion-exchange functionalized polymeric sorbent that allows for complete retention of acidic compounds with a pKa less than 5, making 100% organic wash conditions possible. A 100% organic wash ensures that the maximum amount of interferences are removed from the target compound.
	Strata GCB, 250 mg/6 mL, 30/pk	8B-S528-FH-CH	

Quality Certifications

Phenova PT Standards and CRMs are covered by one or all of the following quality certifications:

ISO/IEC 17025:2017

General requirements for the competence of testing and calibration laboratories.

ISO 17034:2016

General requirements for the competence reference material producers.

ISO/IEC 17043:2010






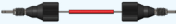



Conformity assessment – General requirements for proficiency testing.

TNI EL-V3-2009

General requirement for environmental proficiency testing providers.



More PFAS Products for your PFAS Methods

Product	Description	Part No.	Description / Benefit
Delay Column 	Luna™ 5 µm C18(2) 30 x 3 mm	00A-4252-YO	Luna C18(2) phase is an octadecyl silane with ligands bound to the silica surface, resulting in a very hydrophobic stationary phase that offers great methylene selectivity. The non-polar endcapping virtually eliminates silanol interactions.
Analytical Column(s) 	Luna Omega 3 µm, PS C18 50 x 3 mm	00B-4758-YO	A multi-modal, 100% aqueous stable C18 column with a positive surface modification offers a unique selectivity and provides valuable increase in retention of acids through ionic/polar interactions. The C18 ligand stimulates hydrophobic retention that greatly promotes increased resolution between analytes of interest. Available in several formats.
	Kinetex™ EVO 5 µm, C18 100 x 2.1 mm	00D-4633-AN	A durable, homogeneous porous shell is grown on a solid silica core to create a core-shell particle resulting in less band broadening when compared to fully porous particles. Kinetex Evo delivers extremely high efficiencies. Available in several formats.
	Gemini™ 3 µm, 50 x 2 mm	00B-4439-BO	A rugged reversed phase HPLC column that offers extended lifetime under extreme pH conditions and excellent stability for reproducible, high efficiency separations. Ideal for analytical and preparative separations of basic and acidic compounds; high and low pH conditions (pH 1-12). Available in several formats.
Column Security 	SecurityGuard™ ULTRA Holder, for UHPLC Columns 2.1 to 4.6 mm ID, Ea	AJ0-9000	SecurityGuard features a standard guard cartridge system that is guaranteed to extend the lifetime of your column by capturing sample contaminants and improve selectivity for early eluting PFAS compounds.
	SecurityGuard Cartridges, PS C18, 4 x 2.0 mm ID, 10/pk	AJ0-7605	
	SecurityGuard ULTRA cartridges for EVO-C18 UHPLC, sub-2 µm and core-shell columns with 2.1 mm internal diameters (ID), 3/pk	AJ0-9298	
Security Link 	The SecurityLINK™ SS 150 x 125 µm length with 10-32 Fittings, Ea	AJ1-1521	A finger-tight fitting system simplifies column connections. Torque limiting technology prevents column and port damage from over tightening. Easy to install. Fitting self-adjusts at column inlet to ensure zero dead volume. UHPLC and HPLC compatibility: pressure rated to 19,000 psi (1,310 bar)
Vial Caps 	Verex™ Cert+ Cap (one-piece), 9 mm, PE w/ Starburst pre-Slit, 2 mL, 1000/pk	ARO-89P6-13-C	Starburst pre-slit
Polypropylene Vials 	Verex Vial, 9 mm Screw, PP, 1.7 mL	ARO-39P0-13	Verex and autosampler vials offer the lowest ion content possible to reduce sample loss and contamination. Tested and certified for cleanliness, performance, and consistency.
	Verex Vial, 9 mm Screw, PP, 300 µL	ARO-39P2-13	
	Verex Vial, 9 mm Screw, PP, 700 µL	ARO-39P1-13	
SPE cartridge Graphitized Carbon Black 	Strata™ GCB 250 mg/6 cc tubes	8B-S528-FCH	Strata GCB is a graphitized carbon black SPE sorbent that offers a better retention of polar compounds compared to C8 and C18 silica products.
	Strata GCB 25 mg pass-through cartridges	8B-S528-CAJ	
Large Volume SPE	Adaptor Cap for 1,3 and 6 mL SPE tubes, w/ luer tip, polypropylene	AH0-7191	Adaptor to interface between 6 mL SPE cartridges and large volume holder AH0-7005
SPE Sample Reservoir	Empty SPE tubes, 60 cc, polypropylene, 16/pk	AH0-7005	Large volume tube that mounts onto 6 mL SPE cartridges. Used for loading large sample volumes.

Trademarks

Gemini, Kinetex, Luna, SecurityGuard, SecurityLINK, Strata, and Verex are trademarks of Phenomenex. Phenova is a registered trademark of Phenova.

Disclaimer

SecurityGuard is patented by Phenomenex. U.S. Patent No. 6,162,362.

CAUTION: this patent only applies to the analytical-sized guard cartridge holder, and does not apply to SemiPrep, PREP or ULTRA holders, or to any cartridges.

Strata-X is patented by Phenomenex. U.S. Patent No. 7,119,145

Kinetex EVO is patented by Phenomenex. U.S. patent No. 7,563,367 and 8,658,038 and foreign counterparts

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