

# 全氟烷基与 多氟烷基 (PFAS) 标准物质



# 全氟烷基和多氟烷基物质 (PFAS)

全氟烷基和多氟烷基物质 (PFAS) 属于一个不断扩大的家族, 包含4000多种人造化学污染物。全氟辛烷磺酸的两亲性决定了它在油和防水工业和消费品中的制造, 如消防泡沫、清洁剂、化妆品、油漆、粘合剂和杀虫剂。然而, 环境化学家和生物学家发现, 全氟辛烷磺酸具有有害的毒理学影响, 并对公众构成重大风险。全氟辛烷磺酸的高热稳定性和化学稳定性使其在环境中持久存在, 几乎不可生物降解, 因此有必要制定化学参考标准来测试饮用水、烧伤部位和聚四氟乙烯产品中全氟辛烷磺酸的浓度。

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## PFOA / PFOS 化合物

全氟烷基磺酸盐	CAS No.	Conc.	Matrix	Cat. No.	Unit
Potassium perfluoro-1-octanesulfonate	2795-39-3	100 µg/mL	MeOH	PFOS-002S	1 mL
Potassium perfluoro-1-butanesulfonate (PPBS)	29420-49-3	50 µg/mL	MeOH	PFOS-005S	1 mL
Sodium perfluoro-1-pentanesulfonate	630402-22-1	50 µg/mL	MeOH	PFOS-006S	1 mL
Potassium perfluoro-1-hexanesulfonate	3871-99-6	50 µg/mL	MeOH	PFOS-007S	1 mL
<b>全氟烷基羧酸</b>					
Perfluoro-n-octanoic acid	335-67-1	100 µg/mL	NEAT	PFOA-001N	100 mg
		100 µg/mL	MeOH	PFOA-001S	1 mL
Perfluoro-n-butanoic acid (PFBA)	375-22-4	100 µg/mL	MeOH	PFOA-002S	1 mL
Perfluoro-n-decanoic acid (PFDA)	335-76-2	100 µg/mL	MeOH	PFOA-003S	1 mL
Perfluoro-n-dodecanoic acid (PFDoA)	307-55-1	100 µg/mL	MeOH	PFOA-004S	1 mL
Perfluoro-n-heptanoic acid (PFHpA)	375-85-9	100 µg/mL	MeOH	PFOA-005S	1 mL
Perfluoro-n-hexanoic acid (PFHxA)	307-24-4	100 µg/mL	MeOH	PFOA-006S	1 mL
Perfluoro-n-nonanoic acid (PFNA)	375-95-1	100 µg/mL	MeOH	PFOA-007S	1 mL
Perfluorooctadecanoic acid (PFODA)	16517-11-6	2 µg/mL	MeOH	PFOA-029S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-029S	1 mL
Perfluoro-n-pentanoic acid (PFPeA)	2706-90-3	100 µg/mL	MeOH	PFOA-008S	1 mL
Perfluoro-n-undecanoic acid (PFUnA)	2058-94-8	100 µg/mL	MeOH	PFOA-009S	1 mL
2H-Perfluoro-2-decenoic acid (FOUEA)	70887-84-2	2 µg/mL	MeOH	PFOA-027S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-027S	1 mL
2,2,3,3-Pentafluoropropionic acid (PFPrA)	422-64-0	2 µg/mL	MeOH	PFOA-015S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-015S	1 mL
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	914637-49-3	2 µg/mL	MeOH	PFOA-022S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-022S	1 mL
2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA)	812-70-4	2 µg/mL	MeOH	PFOA-023S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-023S	1 mL
2H,2H,3H,3H-Perfluoroundecanoic acid (8:3 FTCA)	34598-33-9	100 µg/mL	MeOH	PFOA-010S	1 mL
2H-Perfluoro-2-octenoic acid (FHUEA)	70887-88-6	2 µg/mL	MeOH	PFOA-024S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-024S	1 mL
Perfluoro-n-tridecanoic acid (PFTriA)	72629-94-8	50 µg/mL	MeOH:Water	PFOA-016S-M-W	1 mL
Perfluoro-n-tetradecanoic acid (PFTreA)	376-06-7	50 µg/mL	MeOH:Water	PFOA-017S-M-W	1 mL
Nonafluoro-3,6-dioxahexanoic acid (NFDHA)	151772-58-6	2 µg/mL	MeOH	PFOA-018S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-018S	1 mL
Perfluoro-3-methoxypropanoic acid (PFMPA)	377-73-1	2 µg/mL	MeOH	PFOA-020S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-020S	1 mL
Perfluoro(4-methoxybutanoic) acid (PFMBA)	863090-89-5	2 µg/mL	MeOH	PFOA-021S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-021S	1 mL
2H,2H,3H,3H-Perfluorononanoic acid (6:3 FTCA)	27854-30-4	2 µg/mL	MeOH	PFOA-043S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-043S	1 mL

百灵威独家代理AccuStandard品牌标准品, 并不断更新更多化合物

# PFOA / PFOS 化合物

## PFOA / PFOS 化合物 (续)

全氟辛基磺酰胺乙酸	CAS No.	Conc.	Matrix	Cat. No.	Unit
N-ethylperfluoro-1-octanesulfonamidoacetic acid (NEtFOSAA)	2991-50-6	2 µg/mL	MeOH	PFOS-015S-0.02X	1 mL
		100 µg/mL	MeOH	PFOS-015S	
N-methylN-methylperfluoro-1-octanesulfonamidoacetic acid (NMeFOSAA)	2355-31-9	2 µg/mL	MeOH	PFOS-014S-0.02X	1 mL
		100 µg/mL	MeOH	PFOS-014S	1 mL
N-methyl perfluorooctanesulfonamidoacetic acid		100 µg/mL	MeOH	PFOS-004S	1 mL
N-methylperfluoro-1-octanesulfonamidoacetic acid (NMeFOSAA)	2355-31-9	100 µg/mL	MeOH	PFOS-001S	1 mL
<b>全氟辛烷磺酰胺</b>					
Perfluorooctane sulfonamide (PFOSA)	754-91-6	2 µg/mL	MeOH	PFOS-035S-0.02X	1 mL
		100 µg/mL	MeOH	PFOS-035S	1 mL
Bis(trifluoromethane)sulfonylimide lithium salt (HQ-115)	90076-65-6	2 µg/mL	MeOH	PFOS-030S-0.02X	1 mL
		100 µg/mL	MeOH	PFOS-030S	1 mL
Sulfuramid (NEtFOSA)	4151-50-2	2 µg/mL	MeOH	PFOS-036S-0.02X	1 mL
		100 µg/mL	MeOH	PFOS-036S	1 mL
N-Ethyl-N-(2-hydroxyethyl)perfluorooctylsulphonamide (NEtFOSE)	1691-99-2	2 µg/mL	MeOH	PFOS-039S-0.02X	1 mL
		100 µg/mL	MeOH	PFOS-039S	1 mL
<b>磺酸</b>					
Perfluoro-n-octane sulfonic acid (PFOS)	1763-23-1	100 µg/mL	MeOH	PFOS-001S	1 mL
Perfluoropentanesulfonic acid (PFPeS)	2706-91-4	2 µg/mL	MeOH	PFOA-025S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-025S	1 mL
Perfluoro(2-ethoxyethane)sulphonic acid (PFEESA)	113507-82-7	2 µg/mL	MeOH	PFOA-019S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-019S	1 mL
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)	39108-34-4	2 µg/mL	MeOH	PFOA-014S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-014S	1 mL
1H,1H,2H,2H-Perfluorohexanesulfonic acid (4:2 FTS)	757124-72-4	2 µg/mL	MeOH	PFOA-013S-0.02X	1 mL
		100 µg/mL	MeOH	PFOA-013S	1 mL
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	27619-97-2	2 µg/mL	MeOH	PFOS-028S-0.02X	1 mL
		100 µg/mL	MeOH	PFOS-028S	1 mL
Perfluorononanesulfonic acid (PFNS)	68259-12-1	2 µg/mL	MeOH	PFOS-031S-0.02X	1 mL
		100 µg/mL	MeOH	PFOS-031S	1 mL
Perfluorobutane-1-sulfonic acid (PFBS)	375-73-5	2 µg/mL	MeOH	PFOS-034S-0.02X	1 mL
		100 µg/mL	MeOH	PFOS-034S	1 mL
<b>磺酸盐聚合物</b>					
Sodium 1H,1H,2H,2H-perfluoro-1-hexanesulfonate	27619-93-8	100 µg/mL	MeOH	PFOS-011S	1 mL
Sodium 1H,1H,2H,2H-perfluoro-1-octanesulfonate	27619-94-9	100 µg/mL	MeOH	PFOS-012S	1 mL
Sodium 1H,1H,2H,2H-perfluoro-1-decanesulfonate	27619-96-1	100 µg/mL	MeOH	PFOS-013S	1 mL
<b>含氟调聚物醇</b>					
2,2-Difluoropropan-1-ol 3H,3H,3H (2:1 FTOH)	33420-52-9	100 µg/mL	PT MeOH	FTOH-001S	1 mL
3,3,3-Trifluoropropan-1-ol (1:2 FTOH)	2240-88-2	100 µg/mL	PT MeOH	FTOH-002S	1 mL
2,2,3,3,3-Pentafluoropropan-1-ol	422-05-9	100 µg/mL	PT MeOH	FTOH-003S	1 mL
1H,1H,2H,2H,3H,3H-Perfluorobutan-1-ol (1:3 FTOH)	461-18-7	100 µg/mL	PT MeOH	FTOH-004S	1 mL
1H,1H,2H,2H-Perfluorobutan-1-ol (2:2 FTOH)	54949-74-5	100 µg/mL	PT MeOH	FTOH-006S	1 mL
1H,1H,5H-Perfluoropentan-1-ol (5H 4:1 FTOH)	355-80-6	100 µg/mL	PT MeOH	FTOH-007S	1 mL
2-(Perfluorobutyl)ethanol (4:2)	2043-47-2	100 µg/mL	PT MeOH	FTOH-008S	1 mL
1H,1H,5H-Perfluoropentan-1-ol (5H 4:1 FTOH)	355-80-6	100 µg/mL	PT MeOH	FTOH-010S	1 mL
1H,1H,2H,2H-Perfluorooctan-1-ol (6:2)	647-42-7	100 µg/mL	PT MeOH	FTOH-013S	1 mL
1H,1H,2H,2H-Perfluoro-1-decanol (8:2)	678-39-7	100 µg/mL	PT MeOH	FTOH-021S	1 mL
1H,1H,2H,2H-Perfluoro-9-methyldecan-1-ol (9Me 8:2 FTOH)	31200-98-3	100 µg/mL	PT MeOH	FTOH-024S	1 mL
1H,1H,2H,2H-Perfluorododecan-1-ol (10:2)	865-86-1	100 µg/mL	PT MeOH	FTOH-027S	1 mL
<p>含氟调聚物醇 (FTOH) 是PFAS化合物的前体。FTOH可以生物降解 (氧化) 为聚和全氟酸 (PFCA) 衍生物。在不同的EPA、ASTM和ISO测试方法中, PFCA是PFAS目标化合物的一部分。</p>					
<b>工业级产品</b>					
Ammonium perfluoro(2-methyl-3-oxahexanoate) (GenX)	62037-80-3	100 µg/mL	MeOH	PFOS-019S	1 mL
Scotchgard™ Pre-2002 Formulation (Tech mix)		100 µg/mL	MeOH	PFOS-SCG-001S	1 mL
Scotchgard™ Post-2002 Formulation (Tech mix)		100 µg/mL	MeOH	PFOS-SCG-002S	1 mL
F-53B (Tech mix)		2 µg/mL	MeOH	PFOS-040S-0.02X	1 mL
		100 µg/mL	MeOH	PFOS-040S	1 mL

# EPA方法和地方方法

## 537.1方法标准

美国环保局537方法的更新版本可用于通过固相萃取 (SPE) 和液相色谱/串联质谱 (LC-MS/MS) 对18种分析物进行定量分析。

### M-537.1

2 µg/mL each in MeOH

1 mL

18 comps.

Perfluoro(2-methyl-3-oxahexanoic) acid  
N-ethylperfluoro-1-octanesulfonamidoacetic acid  
N-methylperfluoro-1-octanesulfonamidoacetic acid  
Perfluorobutane-1-sulfonic acid  
Perfluoro-n-decanoic acid  
Perfluoro-n-dodecanoic acid  
Perfluoro-n-heptanoic acid  
Perfluorohexane-1-sulfonic acid  
Perfluoro-n-hexanoic acid

Perfluoro-n-nonanoic acid  
Perfluorooctane-1-sulfonic acid  
Perfluoro-n-octanoic acid  
Perfluoro-n-tetradecanoic acid  
Perfluoro-n-tridecanoic acid  
Perfluoro-n-undecanoic acid  
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid  
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid  
4,8-Dioxa-3H-perfluorononanoic acid

PFAS化合物在自然界中以直链和支链形式存在。每一批生产的产品可能与之前的产品比例不同。如果同时存在直链和支链异构体，则每个标准的分析证书上将提供直链和支化异构体的比例。如果没有比率出现，则标准品仅包含线性异构体。如果在下订单之前必须知道我们当前批次的比例，请联系我们。

### 技术说明

LC-MS/MS对于低检测限分析和EPA、ASTM D7979或其他方法的法规遵从性是优选的。

## 537方法，天然化合物标准

这是第一种测定饮用水中14种全氟辛烷磺酸的方法。它包括14个PFAS，用固相萃取 (SPE) 前护理并用液相色谱/串联质谱 (LC-MS/MS) 仪器进行分析，增加了额外的分析物。

### M-537

50 µg/mL each in AcCN:Water (95:5)

1 mL

14 comps.

Perfluoro-n-hexanoic acid  
Perfluoro-n-heptanoic acid  
Perfluoro-n-octanoic acid  
Perfluoro-n-nonanoic acid  
Perfluoro-n-decanoic acid  
Perfluoro-n-undecanoic acid  
Perfluoro-n-dodecanoic acid  
Perfluoro-n-tridecanoic acid  
Perfluoro-n-tetradecanoic acid  
N-Methylperfluorooctanesulfonamidoacetic acid  
N-Ethylperfluorooctanesulfonamidoacetic acid  
Perfluoro-n-butane sulfonic acid  
Perfluoro-n-hexane sulfonic acid  
Perfluoro-n-octane sulfonic acid

### 技术说明

这是第一种测定饮用水中14种全氟辛烷磺酸的方法。它包括14种PFAS，用于使用固相萃取 (SPE) 和液相色谱/串联质谱 (LC-MS/MS) 进行测定。该方法于2018年更新为537.1，增加了额外的分析物。

## 马萨诸塞州饮用水PFAS参考标准

该PFAS有证标准物质的配方包括马萨诸塞州环境保护部公布的PFAS公共饮用水标准中的化合物。这些化合物被称为PFAS6，由于其在饮用水源中的高丰度，以及与其接触相关的不良健康影响，这些化合物已成为目标。

### PFC-MA

2 µg/mL each in MeOH

1 mL

6 comps.

Perfluorooctane-1-sulfonic acid  
Perfluoro-n-octanoic acid  
Perfluorohexane-1-sulfonic acid  
Perfluoro-n-nonanoic acid  
Perfluoro-n-heptanoic acid  
Perfluoro-n-decanoic acid

# EPA方法

## 1633方法

本标准包含美国环保局方法1633中描述的40种PFAS。美国环保局方法1633用于使用LC-MS/MS技术分析水性、固体、生物固体和组织样品中的全氟辛烷磺酸。

### Method 1633 Mix 1

<b>M-1633-1</b>	<b>1 mL</b>
At stated conc. (µg/mL) in MeOH	11 comps.
Perfluoro-n-butanoic acid	8
Perfluoro-n-pentanoic acid	4
Perfluoro-n-hexanoic acid	2
Perfluoro-n-heptanoic acid	2
Perfluoro-n-octanoic acid	2
Perfluoro-n-nonanoic acid	2
Perfluoro-n-decanoic acid	2
Perfluoro-n-undecanoic acid	2
Perfluoro-n-dodecanoic acid	2
Perfluoro-n-tridecanoic acid	2
Perfluoro-n-tetradecanoic acid	2

### Method 1633 Mix 2

<b>M-1633-2</b>	<b>1 mL</b>
At stated conc. (µg/mL) in MeOH	11 comps.
Perfluorobutane-1-sulfonic acid	2
Perfluoropentanesulfonic acid	2
Perfluorohexane-1-sulfonic acid (Linear and Branched)	2
Perfluoroheptanesulfonic acid	2
Perfluorooctane-1-sulfonic acid (Linear and branched)	2
Perfluorononanesulfonic acid	2
Perfluorodecane-1-sulfonic acid	2
Perfluorododecanesulfonic acid	2
1H,1H,2H,2H-Perfluorohexanesulfonic acid	8
1H,1H,2H,2H-Perfluorooctane sulfonic acid	8
1H,1H,2H,2H-Perfluorodecanesulfonic acid	8

### Method 1633 Mix 3

<b>M-1633-3</b>	<b>1 mL</b>
At stated conc. (µg/mL) in MeOH	7 comps.
Perfluorooctane sulfonamide	2
N-Methylperfluoro-1-octanesulfonamide	2
Sulfluramid	2
N-methylperfluoro-1-octanesulfonamidoacetic acid	2
N-ethylperfluoro-1-octanesulfonamidoacetic acid	2
N-Methylperfluorooctanesulfonamidoethanol	10
N-Ethyl-N-(2-hydroxyethyl)perfluorooctylsulphonamide	10

### Method 1633 Mix 4

<b>M-1633-4</b>	<b>1 mL</b>
At stated conc (µg/mL) in MeOH	11 comps
Perfluoro(2-methyl-3-oxahexanoic) acid	2
Perfluoro-3-methoxypropanoic acid	2
Perfluoro(4-methoxybutanoic) acid	2
Nonafluoro-3,6-dioxaheptanoic acid	2
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid	2
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	2
Perfluoro(2-ethoxyethane)sulphonic acid	2
3-Perfluoropropyl propanoic acid	4
2H,2H,3H,3H-Perfluorooctanoic acid	20
2H,2H,3H,3H-Perfluorodecanoic acid	20
4,8-Dioxa-3H-perfluorononanoic acid	2

## 方法8327，地面、地表和废水的天然PFAS参考标准

本认证标准物质 (CRM) 包含基于美国环保局方法8327最新出版物的24种全氟辛烷磺酸，可用于测试地表水、地下水和废水基质中的全氟辛烷值。

### 天然PFAS参考标准

**M-8327** 2 µg/mL each in MeOH **1 mL**  
24 comps.

**M-8327-10X** 20 µg/mL each in MeOH **1 mL**  
24 comps.

Perfluorobutane-1-sulfonic acid	Perfluoro-n-hexanoic acid
Perfluoropentanesulfonic acid	Perfluoro-n-heptanoic acid
Perfluorohexane-1-sulfonic acid	Perfluoro-n-octanoic acid
Perfluoroheptanesulfonic acid	Perfluoro-n-nonanoic acid
Perfluorooctane-1-sulfonic acid	Perfluoro-n-decanoic acid
Perfluorononanesulfonic acid	Perfluoro-n-undecanoic acid
Perfluorodecane-1-sulfonic acid	Perfluoro-n-dodecanoic acid
1H,1H,2H,2H-Perfluorohexanesulfonic acid	Perfluoro-n-tridecanoic acid
1H,1H,2H,2H-Perfluorooctane sulfonic acid	Perfluoro-n-tetradecanoic acid
1H,1H,2H,2H-Perfluorodecanesulfonic acid	N-ethylperfluoro-1-octanesulfonamidoacetic acid
Perfluoro-n-butanoic acid	N-methylperfluoro-1-octanesulfonamidoacetic acid
Perfluoro-n-pentanoic acid	Perfluorooctane sulfonamide



# ASTM方法

## ASTM D7968 LC-MS/MS法测定土壤中的多氟化合物

### D-7968

2 µg/mL each in MeOH

1 mL  
21 comps.

Perfluoro-n-tetradecanoic acid	Perfluoro-n-octanoic acid	2H,2H-Perfluorooctanoic acid
Perfluoro-n-tridecanoic acid	Perfluorohexane-1-sulfonic acid	2H,2H-Perfluorodecanoic acid
Perfluoro-n-dodecanoic acid	Perfluoro-n-heptanoic acid	2H,2H-Perfluorododecanoic acid
Perfluoro-n-undecanoic acid	Perfluoro-n-hexanoic acid	2H-Perfluoro-2-decenoic Acid
Perfluoro-n-decanoic acid	Perfluorobutane-1-sulfonic acid	2H,2H,3H,3H-Perfluorodecanoic acid
Perfluorooctane-1-sulfonic acid	Perfluoro-n-pentanoic acid	2H-Perfluoro-2-octenoic acid
Perfluoro-n-nonanoic acid	Perfluoro-n-butanoic acid	Perfluoro-4-ethylcyclohexane sulfonic acid

## ASTM D7979 LC-MS/MS法测定水、污泥、进水、出水和废水中的PFAS物质

### D-7979

2 µg/mL each in MeOH

1 mL  
21 comps.

Potassium perfluoro-1-butanesulfonate	Perfluoro-n-octanoic acid	2H,2H,3H,3H-Perfluorodecanoic acid
Potassium perfluoro-1-hexanesulfonate	Perfluoro-n-nonanoic acid	2H-Perfluoro-2-decenoic Acid
Perfluorooctane-1-sulfonic acid	Perfluoro-n-decanoic acid	2H,2H-Perfluorododecanoic acid
Perfluorobutane-1-sulfonic acid	Perfluoro-n-undecanoic acid	2H,2H-Perfluorodecanoic acid
Perfluoro-n-pentanoic acid	Perfluoro-n-dodecanoic acid	2H-Perfluoro-2-octenoic acid
Perfluoro-n-hexanoic acid	Perfluoro-n-tridecanoic acid	2H,2H-Perfluorooctanoic acid
Perfluoro-n-heptanoic acid	Perfluoro-n-tetradecanoic acid	Perfluoro-4-ethylcyclohexane sulfonic acid

## ASTM D8421通过LC-MS/MS测定的水性基质中的全氟辛烷磺酸/全氟辛烷酸

ASTM试验方法D8421用于通过共溶剂化和使用LC-MS/MS技术测定水性基质中的PFAS。我们提供的两种Target Spike混合物和Surrogate Standard CRM包括测试方法中列出的44种不同浓度的天然PFAS。

### D8421天然全氟辛烷磺酸/全氟辛烷酸目标1标准物质

#### D-8421-TS-1

2 µg/mL in each in MeOH:Water (95:5)

1 x 1 mL

22 comps.

Perfluoro-n-tetradecanoic acid  
Perfluoro-n-tridecanoic acid  
Perfluoro-n-dodecanoic acid  
Perfluoro-n-undecanoic acid  
Perfluoro-n-decanoic acid  
Perfluoro-n-nonanoic acid  
Perfluoro-n-octanoic acid  
Perfluoro-n-heptanoic acid  
Perfluoro-n-hexanoic acid  
Perfluorodecane-1-sulfonic acid  
Perfluorononanesulfonic acid  
Perfluorooctane-1-sulfonic acid (Linear and branched)  
Perfluoroheptanesulfonic acid  
Perfluorohexane-1-sulfonic acid (Linear and Branched)  
Perfluoropentanesulfonic acid  
Perfluorobutane-1-sulfonic acid  
Perfluorooctane sulfonamide  
1H,1H,2H,2H-Perfluorodecanesulfonic acid  
1H,1H,2H,2H-Perfluorooctane sulfonic acid  
1H,1H,2H,2H-Perfluorohexanesulfonic acid  
N-ethylperfluoro-1-octanesulfonamidoacetic acid  
N-methylperfluoro-1-octanesulfonamidoacetic acid

### D8421天然全氟辛烷磺酸/全氟辛烷酸目标2标准物质

#### D-8421-TS-2

2 µg/mL each in MeOH:Water (95:5)

1 x 1 mL

19 comps.

Perfluorododecanesulfonic acid  
N-Methylperfluoro-1-octanesulfonamide  
Sulfuramid  
N-Methylperfluorooctanesulfonamidoethanol  
N-Ethyl-N-(2-hydroxyethyl)perfluorooctylsulfonamide  
Perfluoro(2-methyl-3-oxahexanoic) acid  
4,8-Dioxa-3H-perfluorononanoic acid  
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid  
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid  
Nonafluoro-3,6-dioxaheptanoic acid  
Perfluoro(2-ethoxyethane)sulphonic acid  
Perfluoro-3-methoxypropanoic acid  
Perfluoro(4-methoxybutanoic) acid  
3-Perfluoropropyl propanoic acid  
2H,2H,3H,3H-Perfluorooctanoic acid  
2H,2H,3H,3H-Perfluorodecanoic acid  
2H-Perfluoro-2-octenoic acid  
2H-Perfluoro-2-decenoic acid  
Bis(trifluoromethane)sulfonimide lithium salt

### D8421天然全氟辛烷磺酸/全氟辛烷酸目标3标准物质

#### D-8421-TS-3

10 µg/mL each in MeOH:Water (95:5)

1 x 1 mL

3 comps.

Perfluoro-n-pentanoic acid  
Perfluoro-n-butanoic acid  
2,2,3,3,3-Pentafluoropropionic acid

# ISO 方法

该CRM支持使用LC-MS/MS并根据国际标准对饮用水和废水等未过滤水中的全氟辛烷磺酸进行测试。我们的ISO21675 CRM包括测试方法所需的30种天然PFAS。

## ISO 21675:2019 LC-MS/MS法测定水中全氟辛烷磺酸

### 天然PFAS参考标准 ISO21675-PFAS-SET

2 x 1 mL  
(ISO21675-PFAS-R1, PFOA-029S-0.02X)

#### ISO21675-PFAS-R1

2 µg/mL each in MeOH

1 mL  
29 comps.

Perfluoro-n-butanoic acid  
Perfluoro-n-pentanoic acid  
Perfluoro-n-hexanoic acid  
Perfluoro-n-heptanoic acid  
Perfluoro-n-octanoic acid  
Perfluoro-n-nonanoic acid  
Perfluoro-n-decanoic acid  
Perfluoro-n-undecanoic acid  
Perfluoro-n-dodecanoic acid  
Perfluoro-n-tridecanoic acid

Perfluoro-n-tetradecanoic acid  
Perfluorohexadecanoic acid  
Perfluorooctane sulfonamide  
N-Methylperfluoro-1-octanesulfonamide  
Sulfluramid  
N-methylperfluoro-1-octanesulfonamidoacetic acid  
N-ethylperfluoro-1-octanesulfonamidoacetic acid  
2H-Perfluoro-2-decenoic acid  
Perfluoro(2-methyl-3-oxahexanoic) acid  
Perfluorobutane-1-sulfonic acid

Perfluorohexane-1-sulfonic acid  
Perfluoroheptanesulfonic acid  
Perfluorooctane-1-sulfonic acid  
Perfluorodecane-1-sulfonic acid  
1H,1H,2H,2H-Perfluorooctane sulfonic acid  
1H,1H,2H,2H-Perfluorodecanesulfonic acid  
Sodium dodecafluoro-3H-4,8-dioxanonanoate  
Potassium 9-chlorohexadecafluoro-3-oxanone-1-sulfonate  
Bis[2-(perfluorooctyl)ethyl] phosphate

### 全氟十八烷酸 (PFODA)

PFOA-029S-0.02X

2 µg/mL in MeOH

1 mL

## ISO 25101:2009 LC-MS法测定水中全氟辛烷磺酸和全氟辛酸

### 全氟辛烷磺酸和全氟辛酸参考标准

ISO25101

10 µg/mL each in MeOH

1 mL

2 comps.

Perfluorooctane-1-sulfonic acid  
Perfluoro-n-octanoic acid

#### Technical Note

尽管近年来PFOA和PFOS的产量大幅减少,但由于这两种化合物在环境中的持久性,它们继续污染水源。该CRM用于使用(HPLC-MS/MS)检测饮用水、地下水和地表水中的全氟辛酸和全氟辛烷磺酸。

添加NaOH以提高多组分PFAS标准物质的稳定性





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