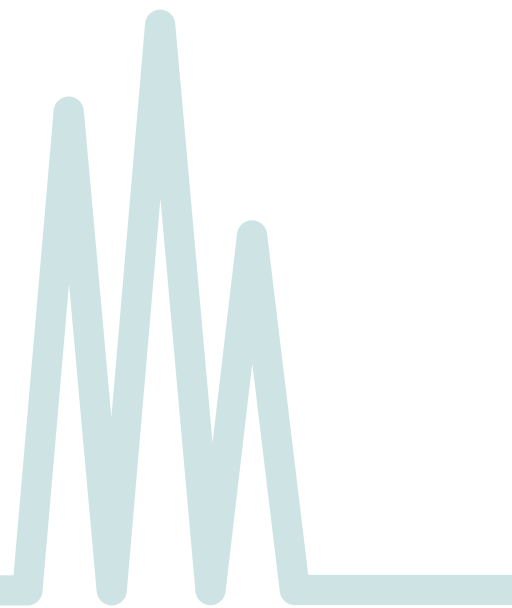


PFAS

有機フッ素化合物 標準品

Per- & Polyfluoroalkyl Substances (PFAS)

2023-2024



新総合カタログ(2021)より、日本国内において話題の標準品をピックアップ致しました。本カタログは有機塩素系農薬 標準品有機フッ素化合物 標準品<Per- & Polyfluoroalkyl Substances (PFAS)>に特化しております。

今回は2023～2024版として、新たに発表された新商品を**NEW**として追記しております。

また、カタログ後半にはPFAS製品に関するクイックリファレンスガイド(日本語版)を製品利用の参考資料としてご活用いただけますと幸いです。

『用途確認書』について

『第一種特定化学物質』に指定されている化合物については、製造、輸入、使用は原則として禁止されています。

但し、試験研究用に使用する場合に限り、使用することが出来ます。

『化学物質の審査及び製造等の規制に関する法律(略称:化審法)』に指定されている第一種特定化学物質に該当する本カタログ掲載製品は、本文中に以下の記号で表示しています。

用 第一種特定化学物質

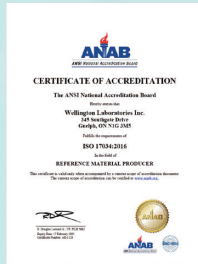
この為、使用目的等を明記した『用途確認書』を弊社宛に提出頂き次第、販売致します。巻末に『用途確認書』を資料として掲載していますので、ご活用ください。



高精度な標準品で確かな分析を

PFOS PFOA PFHxS 3種混合標準品

水道水向け「水質管理目標設定項目の検査方法」(厚生労働省通知)、土壌向け「土壌溶出量試験」及び「土壌含有量試験」(環境省通知)においてPFOS、PFOA及びPFHxSの3物質の測定に関する指針が定められました。これらに準じた新たなWellington Laboratories Inc. 製混合標準品の販売を始めました。



Wellington Laboratories Inc. は高品質な製品の流通、優れた顧客サービスの維持に尽力しています。可能な限り最高のサービスを提供するために、計画、生産、テスト、流通のあらゆる側面をカバーする3つのISO認証(ISO9001:2015、ISO/IEC17025:2017、ISO17034:2016)を取得しています。これにより、ISO認証を受けた確実な製品で高精度な分析が可能です。

MIXED NATIVE L-PFOS, L-PFHxS AND PFOA: SOLUTION/MIXTURES

Catalogue Number	Product (methanol solution)	Qty/Conc
NEW 用 PFAS-3PAR	Native L-PFOS, L-PFHxS and PFOA Solution/Mixture	1.2 mL

MIXED MASS-LABELLED M8PFOS, M3PFHxS AND M8PFOA: SOLUTION/MIXTURES

Catalogue Number	Product (methanol solution)	Qty/Conc
NEW 用 MPFAS-3ES	Mass-Labelled M8PFOS, M3PFHxS and M8PFOA Solution/Mixture	1.2 mL

用 第一種特定化学物質

PFC-CVS-C

Catalogue Number	Product (methanol solution)	Qty/Conc				
用 PFC-CVS-C	PFC-CVS-C Calibration Solutions CS1-CS5	1 kit (5 ampoules)				
用 PFC-C-CS1	CS1	200 µL				
用 PFC-C-CS2	CS2	200 µL				
用 PFC-C-CS3	CS3	200 µL				
用 PFC-C-CS4	CS4	200 µL				
用 PFC-C-CS5	CS5	200 µL				
		PFC-C- CS1 (ng/mL)	PFC-C- CS2 (ng/mL)	PFC-C- CS3 (ng/mL)	PFC-C- CS4 (ng/mL)	PFC-C- CS5 (ng/mL)
NATIVE PFCs						
Perfluoro-n-butanoic acid	PFBA	2.00	10.0	50.0	200	1000
Perfluoro-n-pentanoic acid	PFPeA	2.00	10.0	50.0	200	1000
Perfluoro-n-hexanoic acid	PFHxA	2.00	10.0	50.0	200	1000
Perfluoro-n-heptanoic acid	PFHpA	2.00	10.0	50.0	200	1000
Perfluoro-n-octanoic acid	PFOA	2.00	10.0	50.0	200	1000
Perfluoro-n-nonanoic acid	PFNA	2.00	10.0	50.0	200	1000
Perfluoro-n-decanoic acid	PFDA	2.00	10.0	50.0	200	1000
Perfluoro-n-undecanoic acid	PFUdA	2.00	10.0	50.0	200	1000
Perfluoro-n-dodecanoic acid	PFDoA	2.00	10.0	50.0	200	1000
Perfluoro-n-tridecanoic acid	PFTrDA	2.00	10.0	50.0	200	1000
Perfluoro-n-tetradecanoic acid	PFTeDA	2.00	10.0	50.0	200	1000
Perfluoro-n-hexadecanoic acid	PFHxDA	2.00	10.0	50.0	200	1000
Perfluoro-n-octadecanoic acid	PFODA	2.00	10.0	50.0	200	1000
Potassium perfluoro-1-butanefluorobutanesulfonate	L-PFBS	2.00	10.0	50.0	200	1000
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	2.00	10.0	50.0	200	1000
Sodium perfluoro-1-hexanesulfonate	L-PFHxS	2.00	10.0	50.0	200	1000
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	2.00	10.0	50.0	200	1000
Sodium perfluoro-1-octanesulfonate	L-PFOS	2.00	10.0	50.0	200	1000
Sodium perfluoro-1-nonanesulfonate	L-PFNS	2.00	10.0	50.0	200	1000
Sodium perfluoro-1-decanesulfonate	L-PFDS	2.00	10.0	50.0	200	1000
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	2.00	10.0	50.0	200	1000
MASS-LABELLED PFC EXTRACTION STANDARDS						
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	50.0	50.0	50.0	50.0	50.0
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	50.0	50.0	50.0	50.0	50.0
Perfluoro-n-(1,2,3,4,6- ¹³ C ₆)hexanoic acid	M5PFHxA	50.0	50.0	50.0	50.0	50.0
Perfluoro-n-(1,2,3,4- ¹³ C ₇)heptanoic acid	M4PFHpA	50.0	50.0	50.0	50.0	50.0
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	50.0	50.0	50.0	50.0	50.0
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	50.0	50.0	50.0	50.0	50.0
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₁₀)decanoic acid	M6PFDA	50.0	50.0	50.0	50.0	50.0
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	50.0	50.0	50.0	50.0	50.0
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	50.0	50.0	50.0	50.0	50.0
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	50.0	50.0	50.0	50.0	50.0
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	50.0	50.0	50.0	50.0	50.0
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	50.0	50.0	50.0	50.0	50.0
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	50.0	50.0	50.0	50.0	50.0
MASS-LABELLED PFC INJECTION STANDARDS						
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	50.0	50.0	50.0	50.0	50.0
Perfluoro-n-(1,2- ¹³ C ₂)octanoic acid	M2PFOA	50.0	50.0	50.0	50.0	50.0
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	50.0	50.0	50.0	50.0	50.0
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	50.0	50.0	50.0	50.0	50.0

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質

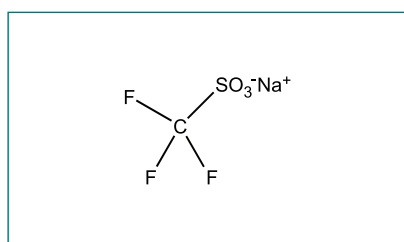
Catalogue Number	Product (methanol solution)	Qty/Conc		
用 MPFAC-C-ES	Mass-Labelled PFAS Extraction Standards Solution	1.2 mL		
用 MPFAC-C-IS	Mass-Labelled PFAS Injection Standards Solution	1.2 mL		
用 PFAC-MXC	Native PFAS Stock Solution	1.2 mL		
NATIVE PFCs				
		MPFAC-C-ES (ng/mL)	MPFAC-C-IS (ng/mL)	PFAC-MXC (ng/mL)
Perfluoro-n-butanoic acid	PFBA	—	—	2000
Perfluoro-n-pentanoic acid	PFPeA	—	—	2000
Perfluoro-n-hexanoic acid	PFHxA	—	—	2000
Perfluoro-n-heptanoic acid	PFHpA	—	—	2000
Perfluoro-n-octanoic acid	PFOA	—	—	2000
Perfluoro-n-nonanoic acid	PFNA	—	—	2000
Perfluoro-n-decanoic acid	PFDA	—	—	2000
Perfluoro-n-undecanoic acid	PFUdA	—	—	2000
Perfluoro-n-dodecanoic acid	PFDoA	—	—	2000
Perfluoro-n-tridecanoic acid	PFTrDA	—	—	2000
Perfluoro-n-tetradecanoic acid	PFTeDA	—	—	2000
Perfluoro-n-hexadecanoic acid	PFHxDA	—	—	2000
Perfluoro-n-octadecanoic acid	PFODA	—	—	2000
Potassium perfluoro-1-butanedisulfonate	L-PFBS	—	—	2000
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	—	—	2000
Sodium perfluoro-1-hexanesulfonate	L-PFHxS	—	—	2000
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	—	—	2000
Sodium perfluoro-1-octanesulfonate	L-PFOS	—	—	2000
Sodium perfluoro-1-nonanesulfonate	L-PFNS	—	—	2000
Sodium perfluoro-1-decanedisulfonate	L-PFDS	—	—	2000
Sodium perfluoro-1-dodecanedisulfonate	L-PFDoS	—	—	2000
MASS-LABELLED PFC EXTRACTION STANDARDS				
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	2000	—	—
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	2000	—	—
Perfluoro-n-(1,2,3,4,6- ¹³ C ₆)hexanoic acid	M5PFHxA	2000	—	—
Perfluoro-n-(1,2,3,4- ¹³ C ₇)heptanoic acid	M4PFHpA	2000	—	—
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	2000	—	—
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	2000	—	—
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₁₀)decanoic acid	M6PFDA	2000	—	—
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₁₁)undecanoic acid	M7PFUdA	2000	—	—
Perfluoro-n-(1,2- ¹³ C ₁₂)dodecanoic acid	MPFDoA	2000	—	—
Perfluoro-n-(1,2- ¹³ C ₁₄)tetradecanoic acid	M2PFTeDA	2000	—	—
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	2000	—	—
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	2000	—	—
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	2000	—	—
MASS-LABELLED PFC INJECTION STANDARDS				
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	—	2000	—
Perfluoro-n-(1,2- ¹³ C ₂)octanoic acid	M2PFOA	—	2000	—
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	—	2000	—
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	—	2000	—

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

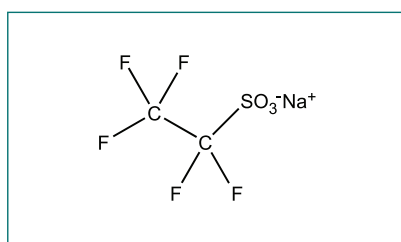
用 第一種特定化学物質

NATIVE LINEAR PERFLUOROALKANESULFONATES (PFSA)

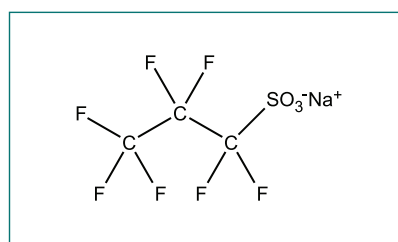
Catalogue Number	Product (methanol solution)	Qty/Conc
NEW PFMes	Sodium trifluoromethanesulfonate	1.2 mL 50.0 µg/mL
NEW PFETS	Sodium perfluoroethanesulfonate	1.2 mL 50.0 µg/mL
L-PFPrS	Sodium perfluoro-1-propanesulfonate	1.2 mL 50.0 µg/mL
L-PFBS	Potassium perfluoro-1-butanesulfonate	1.2 mL 50.0 µg/mL
L-PFPeS	Sodium perfluoro-1-pentanesulfonate	1.2 mL 50.0 µg/mL
用 L-PFHxS	Sodium perfluoro-1-hexanesulfonate	1.2 mL 50.0 µg/mL
L-PFHpS	Sodium perfluoro-1-heptanesulfonate	1.2 mL 50.0 µg/mL
用 L-PFOS	Sodium perfluoro-1-octanesulfonate	1.2 mL 50.0 µg/mL
用 L-PFOSK	Potassium perfluoro-1-octanesulfonate	1.2 mL 50.0 µg/mL
L-PFNs	Sodium perfluoro-1-nonanesulfonate	1.2 mL 50.0 µg/mL
L-PFDS	Sodium perfluoro-1-decanesulfonate	1.2 mL 50.0 µg/mL
L-PFUdS	Sodium perfluoro-1-undecanesulfonate	1.2 mL 50.0 µg/mL
L-PFDoS	Sodium perfluoro-1-dodecanesulfonate	1.2 mL 50.0 µg/mL
L-PFTrDS	Sodium perfluoro-1-tridecanesulfonate	1.2 mL 50.0 µg/mL



PFMeS



PFETS



L-PFPrS

NATIVE PERFLUOROALKANESULFONATES: SOLUTION/MIXTURE

Catalogue Number	Product (methanol solution)	Qty/Conc
用 PFS-MXA	Native PFAS Solution/Mixture	1.2 mL
	Potassium perfluoro-1-butanesulfonate	L-PFBS 2.00 µg/mL
	Sodium perfluoro-1-hexanesulfonate	L-PFHxS 2.00 µg/mL
	Sodium perfluoro-1-heptanesulfonate	L-PFHpS 2.00 µg/mL
	Sodium perfluoro-1-octanesulfonate	L-PFOS 2.00 µg/mL
	Sodium perfluoro-1-decanesulfonate	L-PFDS 2.00 µg/mL

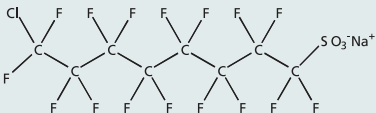
NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質




NATIVE PERFLUOROETHYLCYCLOHEXANESULFONATE (PFECHS)

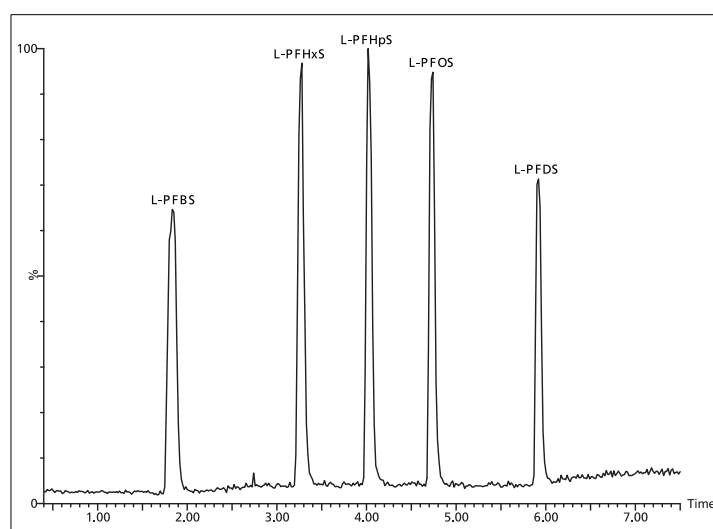
Catalogue Number	Product (methanol solution)	Qty/Conc
PFECHS	Perfluoro-4-ethylcyclohexanesulfonate (isomeric mixture)	1.2 mL 50.0 µg/mL

NATIVE CHLORO-PERFLUOROALKANESULFONATE

Catalogue Number	Product
8Cl-PFOS	 <p>Sodium 8-chloroperfluoro-1-octanesulfonate 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol</p>

NATIVE BRANCHED PERFLUOROALKANESULFONATES

Catalogue Number	Product (methanol solution)	Qty/Conc
 br-PFHxSK	L-PFHxS with branched isomers (Potassium Salt)	1.2 mL 50.0 µg/mL
 br-PFOSK	L-PFOSK with branched isomers (Potassium Salt)	1.2 mL 50.0 µg/mL
 T-PFOS	Potassium perfluorooctanesulfonate (Technical Grade)	1.2 mL 50.0 µg/mL
NaP3MHpS	Sodium perfluoro-3-methylheptanesulfonate	1.2 mL 50.0 µg/mL
NaP6MHpS	Sodium perfluoro-6-methylheptanesulfonate	1.2 mL 50.0 µg/mL
ipPFNS	Sodium perfluoro-7-methyloctanesulfonate	1.2 mL 50.0 µg/mL

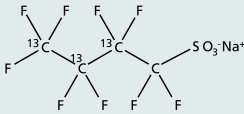
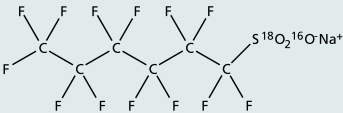
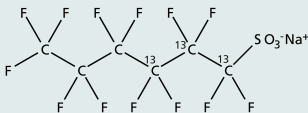
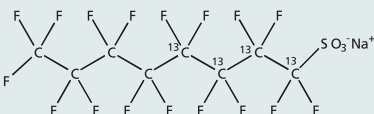
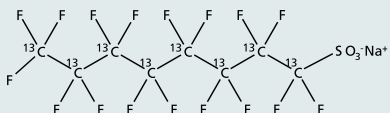


LC/MS Data for PFS-MXA on an Acquity UPLC BEH Shield RP₁₈ column.

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

 第一種特定化学物質

MASS-LABELLED PERFLUOROALKANESULFONATES

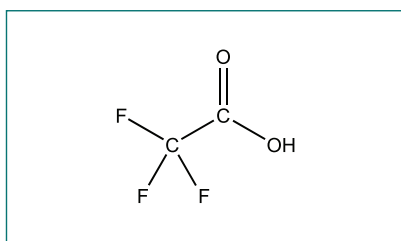
Catalogue Number	Product
M3PFBS	 <p>Sodium perfluoro-1-(2,3,4-¹³C₃)butanesulfonate 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 2,3,4-¹³C₃</p>
用 MPFHxS	 <p>Sodium perfluoro-1-hexane(¹⁸O₂)sulfonate 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; 94% ¹⁸O₂</p>
用 M3PFHxS	 <p>Sodium perfluoro-1-(1,2,3-¹³C₃)hexanesulfonate 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2,3-¹³C₃</p>
用 MPFOS	 <p>Sodium perfluoro-1-(1,2,3,4-¹³C₄)octanesulfonate 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2,3,4-¹³C₄</p>
用 M8PFOS	 <p>Sodium perfluoro-1-(¹³C₈)octanesulfonate 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% ¹³C₈</p>

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

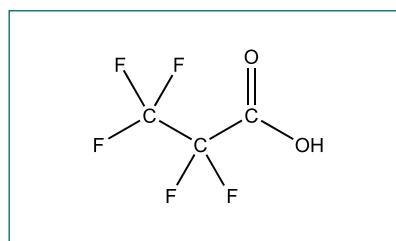
用 第一種特定化学物質

NATIVE LINEAR PERFLUOROALKYLCARBOXYLIC ACIDS (PFCA)

Catalogue Number	Product (methanol solution)	Qty/Conc
NEW TFA	Trifluoroacetic acid	1.2 mL 50.0 µg/mL
NEW PFPrA	Perfluoropropanoic acid	1.2 mL 50.0 µg/mL
PFBA	Perfluoro-n-butanoic acid	1.2 mL 50.0 µg/mL
PFPeA	Perfluoro-n-pentanoic acid	1.2 mL 50.0 µg/mL
PFHxA	Perfluoro-n-hexanoic acid	1.2 mL 50.0 µg/mL
PFHpA	Perfluoro-n-heptanoic acid	1.2 mL 50.0 µg/mL
用 PFOA	Perfluoro-n-octanoic acid	1.2 mL 50.0 µg/mL
PFNA	Perfluoro-n-nonanoic acid	1.2 mL 50.0 µg/mL
PFDA	Perfluoro-n-decanoic acid	1.2 mL 50.0 µg/mL
PFuDA	Perfluoro-n-undecanoic acid	1.2 mL 50.0 µg/mL
PFDoA	Perfluoro-n-dodecanoic acid	1.2 mL 50.0 µg/mL
PFTrDA	Perfluoro-n-tridecanoic acid	1.2 mL 50.0 µg/mL
PFTeDA	Perfluoro-n-tetradecanoic acid	1.2 mL 50.0 µg/mL
PFHxDA	Perfluoro-n-hexadecanoic acid	1.2 mL 50.0 µg/mL
PFODA	Perfluoro-n-octadecanoic acid	1.2 mL 50.0 µg/mL



TFA



PFPrA

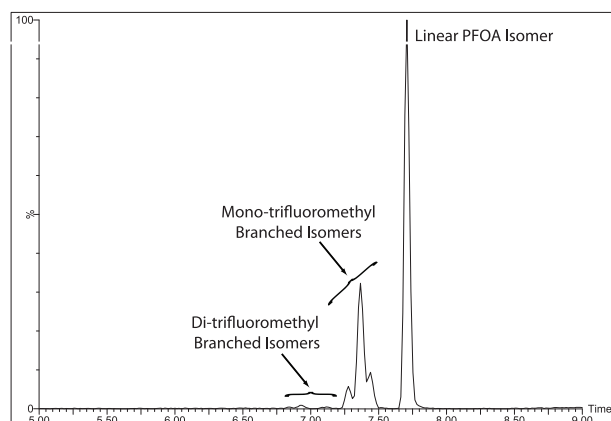
用 第一種特定化学物質

NATIVE PERFLUOROALKYLCARBOXYLIC ACIDS: SOLUTION/MIXTURE

Catalogue Number	Product (methanol solution)	Qty/Conc
用 PFC-MXA	Native PFCA Solution/Mixture	1.2 mL
Perfluoro-n-butanoic acid	PFBA	2.00 µg/mL
Perfluoro-n-pentanoic acid	PFPeA	2.00 µg/mL
Perfluoro-n-hexanoic acid	PFHxA	2.00 µg/mL
Perfluoro-n-heptanoic acid	PFHpA	2.00 µg/mL
Perfluoro-n-octanoic acid	PFOA	2.00 µg/mL
Perfluoro-n-nonanoic acid	PFNA	2.00 µg/mL
Perfluoro-n-decanoic acid	PFDA	2.00 µg/mL
Perfluoro-n-undecanoic acid	PFUdA	2.00 µg/mL
Perfluoro-n-dodecanoic acid	PFDoA	2.00 µg/mL
Perfluoro-n-tridecanoic acid	PFTrDA	2.00 µg/mL
Perfluoro-n-tetradecanoic acid	PFTeDA	2.00 µg/mL

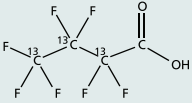
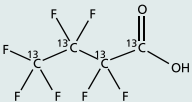

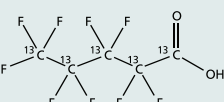
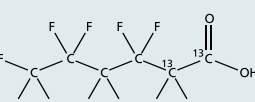
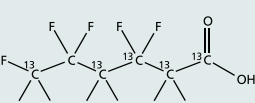
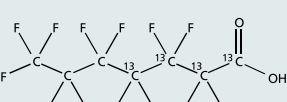
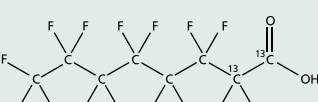
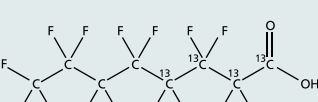
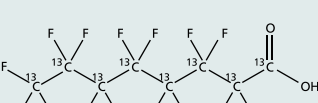
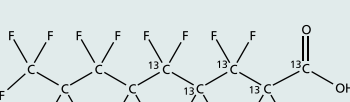
NATIVE BRANCHED PERFLUOROALKYLCARBOXYLIC ACIDS

Catalogue Number	Product (methanol solution)	Qty/Conc
NEW 用 br-PFOA	Perfluorooctanoic acid with branched isomers	1.2 mL 50.0 µg/mL
用 T-PFOA	Ammonium perfluorooctanoate (Technical Grade)	1.2 mL 50.0 µg/mL
P3MHpA	Perfluoro-3-methylheptanoic acid	1.2 mL 50.0 µg/mL
NEW br-PFNA	Perfluorononanoic acid with branched isomers	1.2 mL 50.0 µg/mL
P4MOA	Perfluoro-4-methyloctanoic acid	1.2 mL 50.0 µg/mL
ipPFNA	Perfluoro-7-methyloctanoic acid	1.2 mL 50.0 µg/mL
P355TMHxA	Perfluoro-3,5,5-trimethylhexanoic acid	1.2 mL 50.0 µg/mL
P37DMOA	Perfluoro-3,7-dimethyloctanoic acid	1.2 mL 50.0 µg/mL



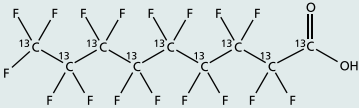
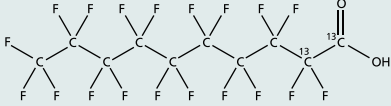
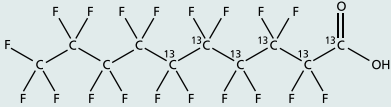

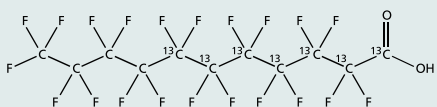
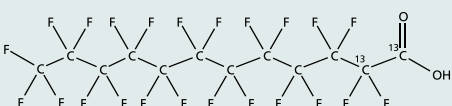
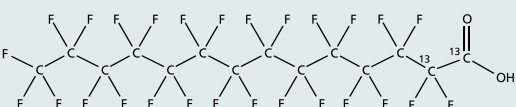
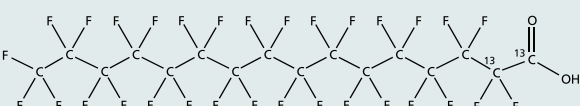
用 第一種特定化学物質

MASS-LABELLED PERFLUOROALKYLCARBOXYLIC ACIDS

Catalogue Number	Product
M3PFBA	 <p>Perfluoro-n-(2,3,4-¹³C₃)butanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 2,3,4-¹³C₃</p>
MPFBA	 <p>Perfluoro-n-(¹³C₄)butanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% ¹³C₄</p>
M3PFPeA	 <p>Perfluoro-n-(3,4,5-¹³C₃)pentanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 3,4,5-¹³C₃</p>
M5PFPeA	 <p>Perfluoro-n-(¹³C₅)pentanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% ¹³C₅</p>
MPFHxA	 <p>Perfluoro-n-(1,2-¹³C₂)hexanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2-¹³C₂</p>
M5PFHxA	 <p>Perfluoro-n-(1,2,3,4,6-¹³C₅)hexanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2,3,4,6-¹³C₅</p>
M4PFHpA	 <p>Perfluoro-n-(1,2,3,4-¹³C₄)heptanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2,3,4-¹³C₄</p>
用 M2PFOA	 <p>Perfluoro-n-(1,2-¹³C₂)octanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2-¹³C₂</p>
用 MPFOA	 <p>Perfluoro-n-(1,2,3,4-¹³C₄)octanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2,3,4-¹³C₄</p>
用 M8PFOA	 <p>Perfluoro-n-(¹³C₈)octanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >98% ¹³C₈ and 1.0% ¹³C₄</p>
MPFNA	 <p>Perfluoro-n-(1,2,3,4,5-¹³C₅)nonanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2,3,4,5-¹³C₅</p>

用 第一種特定化学物質

MASS-LABELLED PERFLUOROALKYLCARBOXYLIC ACIDS

Catalogue Number	Product
M9PFNA 	Perfluoro-n-(¹³ C ₉)nonanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% ¹³ C ₉
MPFDA 	Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2- ¹³ C ₂
M6PFDA 	Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₆)decanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2,3,4,5,6- ¹³ C ₆
MPFUDa 	Perfluoro-n-(1,2- ¹³ C ₂)undecanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2- ¹³ C ₂
M7PFUDa 	Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₇)undecanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2,3,4,5,6,7- ¹³ C ₇
MPFDoA 	Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2- ¹³ C ₂
M2PFTeDA 	Perfluoro-n-(1,2- ¹³ C ₂)tetradecanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2- ¹³ C ₂
M2PFHxDA 	Perfluoro-n-(1,2- ¹³ C ₂)hexadecanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; >99% 1,2- ¹³ C ₂

MIXED NATIVE PFAS: SOLUTION/MIXTURES

Catalogue Number	Product (methanol solution)	Qty/Conc
用 PFAC-MXA	Native PFCA and PFSA Solution/Mixture	1.2 mL
Perfluoro-n-butanoic acid	PFBA	5.00 µg/mL
Perfluoro-n-pentanoic acid	PFPeA	5.00 µg/mL
Perfluoro-n-hexanoic acid	PFHxA	5.00 µg/mL
Perfluoro-n-heptanoic acid	PFHpA	5.00 µg/mL
Perfluoro-n-octanoic acid	PFOA	5.00 µg/mL
Perfluoro-n-nonanoic acid	PFNA	5.00 µg/mL
Perfluoro-n-decanoic acid	PFDA	5.00 µg/mL
Potassium perfluoro-1-butanedisulfonate	L-PFBS	5.00 µg/mL
Sodium perfluoro-1-hexanedisulfonate	L-PFHxS	5.00 µg/mL
Sodium perfluoro-1-octanedisulfonate	L-PFOS	5.00 µg/mL
用 PFAC-MXB	Native PFCA and PFSA Solution/Mixture	1.2 mL
Perfluoro-n-butanoic acid	PFBA	2000 ng/mL
Perfluoro-n-pentanoic acid	PFPeA	2000 ng/mL
Perfluoro-n-hexanoic acid	PFHxA	2000 ng/mL
Perfluoro-n-heptanoic acid	PFHpA	2000 ng/mL
Perfluoro-n-octanoic acid	PFOA	2000 ng/mL
Perfluoro-n-nonanoic acid	PFNA	2000 ng/mL
Perfluoro-n-decanoic acid	PFDA	2000 ng/mL
Perfluoro-n-undecanoic acid	PFUdA	2000 ng/mL
Perfluoro-n-dodecanoic acid	PFDoA	2000 ng/mL
Perfluoro-n-tridecanoic acid	PFTrDA	2000 ng/mL
Perfluoro-n-tetradecanoic acid	PFTeDA	2000 ng/mL
Perfluoro-n-hexadecanoic acid	PFHxDA	2000 ng/mL
Perfluoro-n-octadecanoic acid	PFODA	2000 ng/mL
Potassium perfluoro-1-butanedisulfonate	L-PFBS	2000 ng/mL
Sodium perfluoro-1-hexanedisulfonate	L-PFHxS	2000 ng/mL
Sodium perfluoro-1-octanedisulfonate	L-PFOS	2000 ng/mL
Sodium perfluoro-1-decanedisulfonate	L-PFDS	2000 ng/mL
PFAC-MXF	Native Replacement PFAS Solution/Mixture	1.2 mL
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	2000 ng/mL
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	2000 ng/mL
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000 ng/mL
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000 ng/mL
PFAC-MXG	Native Perfluoroalkyl Ether Carboxylic Acids and Sulfonate Solution/Mixture	1.2 mL
Perfluoro-4-oxapentanoic acid	PF4OPeA	2000 ng/mL
Perfluoro-5-oxahexanoic acid	PF5OHxA	2000 ng/mL
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	2000 ng/mL
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	2000 ng/mL

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質

MIXED NATIVE PFAS: SOLUTION/MIXTURES

Catalogue Number	Product (methanol solution)	Qty/Conc
用 PFAC-MXH	Native PFAS Solution/Mixture	1.2 mL
Perfluoro-n-butanoic acid	PFBA	4000 ng/mL
Perfluoro-n-pentanoic acid	PFPeA	2000 ng/mL
Perfluoro-n-hexanoic acid	PFHxA	1000 ng/mL
Perfluoro-n-heptanoic acid	PFHpA	1000 ng/mL
Perfluoro-n-octanoic acid	PFOA	1000 ng/mL
Perfluoro-n-nonanoic acid	PFNA	1000 ng/mL
Perfluoro-n-decanoic acid	PFDA	1000 ng/mL
Perfluoro-n-undecanoic acid	PFUdA	1000 ng/mL
Perfluoro-n-dodecanoic acid	PFDoA	1000 ng/mL
Perfluoro-n-tridecanoic acid	PFTTrDA	1000 ng/mL
Perfluoro-n-tetradecanoic acid	PFTeDA	1000 ng/mL
Perfluoro-1-octanesulfonamide	FOSA	1000 ng/mL
N-methylperfluorooctanesulfonamidoacetic acid (linear and branched isomers)	br-NMeFOSAA	1000 ng/mL
N-ethylperfluorooctanesulfonamidoacetic acid (linear and branched isomers)	br-NEtFOSAA	1000 ng/mL
Potassium perfluoro-1-butanesulfonate	L-PFBS	1000 ng/mL
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000 ng/mL
Potassium perfluorohexanesulfonate (linear and branched isomers)	br-PFHxSK	1000 ng/mL
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000 ng/mL
Potassium perfluorooctanesulfonate (linear and branched isomers)	br-PFOSK	1000 ng/mL
Sodium perfluoro-1-nonanesulfonate	L-PFNS	1000 ng/mL
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000 ng/mL
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	1000 ng/mL
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	4000 ng/mL
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	4000 ng/mL
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	4000 ng/mL
PFAC-MXI	Native N-Me/EtFOSA & N-Me/EtFOSE Solution/Mixture	1.2 mL
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	1.00 µg/mL
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	1.00 µg/mL
2-(N-methylperfluoro-1-octanesulfonamido)ethanol	N-MeFOSE	10.0 µg/mL
2-(N-ethylperfluoro-1-octanesulfonamido)ethanol	N-EtFOSE	10.0 µg/mL
PFAC-MXJ	Native X:3 Fluorotelomer Carboxylic Acid Solution/Mixture	1.2 mL
3-Perfluoropropyl propanoic acid	FPrPA	4.00 µg/mL
3-Perfluoropentyl propanoic acid	FPePA	20.0 µg/mL
3-Perfluoroheptyl propanoic acid	FHpPA	20.0 µg/mL

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質

MIXED MASS-LABELLED PFAS: SOLUTION/MIXTURES

Catalogue Number	Product (methanol solution)	Qty/Conc
用 MPFAC-HIF-ES	Mass-Labelled PFAS Extraction Standard Solution/Mixture	1.2 mL
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	2000 ng/mL
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000 ng/mL
Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA	500 ng/mL
Perfluoro-n-(1,2,3,4- ¹³ C ₄)heptanoic acid	M4PFHpA	500 ng/mL
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	500 ng/mL
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	250 ng/mL
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₆)decanoic acid	M6PFDA	250 ng/mL
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₇)undecanoic acid	M7PFUdA	250 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFDoA	250 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)tetradecanoic acid	M2PFTeDA	250 ng/mL
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	500 ng/mL
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	500 ng/mL
N-ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	500 ng/mL
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000 ng/mL
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000 ng/mL
2-(N-methyl-d ₃ -perfluoro-1-octanesulfonamido)ethan-d ₄ -ol	d7-N-MeFOSE	5000 ng/mL
2-(N-ethyl-d ₅ -perfluoro-1-octanesulfonamido)ethan-d ₄ -ol	d9-N-EtFOSE	5000 ng/mL
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	2000 ng/mL
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	500 ng/mL
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	500 ng/mL
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	500 ng/mL
Sodium 1H,1H,2H,2H-perfluoro(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000 ng/mL
Sodium 1H,1H,2H,2H-perfluoro(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000 ng/mL
Sodium 1H,1H,2H,2H-perfluoro(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000 ng/mL

Catalogue Number	Product (methanol solution)	Qty/Conc
用 MPFAC-HIF-IS	Mass-Labelled PFAS Injection Standard Solution/Mixture	1.2 mL
Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA	1000 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	500 ng/mL
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	500 ng/mL
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	MPFNA	250 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	250 ng/mL
Sodium perfluoro-1-hexane(¹⁸ O ₂)sulfonate	MPFHxS	500 ng/mL
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	500 ng/mL

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質

MIXED MASS-LABELLED PFAS: SOLUTION/MIXTURES

Catalogue Number	Product (methanol solution)	Qty/Conc
NEW 用 EPA-1633STK	EPA Method 1633 Native PFAS Standard Solution/Mixture	1.2 mL
Perfluoro-n-butanoic acid	PFBA	1000 ng/mL
Perfluoro-n-pentanoic acid	PFPeA	500 ng/mL
Perfluoro-n-hexanoic acid	PFHxA	250 ng/mL
Perfluoro-n-heptanoic acid	PFHpA	250 ng/mL
Perfluorooctanoic acid (linear and branched isomers)	br-PFOA	250 ng/mL
Perfluorononanoic acid (linear and branched isomers)	br-PFNA	250 ng/mL
Perfluoro-n-decanoic acid	PFDA	250 ng/mL
Perfluoro-n-undecanoic acid	PFUdA	250 ng/mL
Perfluoro-n-dodecanoic acid	PFDoA	250 ng/mL
Perfluoro-n-tridecanoic acid	PFTTrDA	250 ng/mL
Perfluoro-n-tetradecanoic acid	PFTeDA	250 ng/mL
Perfluorooctanesulfonamide (linear and branched isomers)	br-FOSA	250 ng/mL
N-Methylperfluorooctanesulfonamide (linear and branched isomers)	br-NMeFOSA	250 ng/mL
N-Ethylperfluorooctanesulfonamide (linear and branched isomers)	br-NEtFOSA	250 ng/mL
N-Methylperfluorooctanesulfonamidoacetic acid (linear and branched isomers)	br-NMeFOSAA	250 ng/mL
N-Ethylperfluorooctanesulfonamidoacetic acid (linear and branched isomers)	br-NEtFOSAA	250 ng/mL
2-(N-Methylperfluorooctanesulfonamido)ethanol (linear and branched isomers)	br-NMeFOSE	2500 ng/mL
2-(N-Ethylperfluorooctanesulfonamido)ethanol (linear and branched isomers)	br-NEtFOSE	2500 ng/mL
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	1000 ng/mL
Perfluoro-4-oxapentanoic acid	PF4OPeA	500 ng/mL
Perfluoro-5-oxahexanoic acid	PF5OHxA	500 ng/mL
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	500 ng/mL
3-Perfluoropropyl propanoic acid	FPrPA	1250 ng/mL
3-Perfluoropentyl propanoic acid	FPePA	6250 ng/mL
3-Perfluoroheptyl propanoic acid	FHpPA	6250 ng/mL
Potassium perfluoro-1-butanesulfonate	L-PFBS	250 ng/mL*
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	250 ng/mL*
Potassium perfluorohexanesulfonate (linear and branched isomers)	br-PFHxSK	250 ng/mL*
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	250 ng/mL*
Potassium perfluorooctanesulfonate (linear and branched isomers)	br-PFOSK	250 ng/mL*
Sodium perfluoro-1-nonanesulfonate	L-PFNs	250 ng/mL*
Sodium perfluoro-1-decanesulfonate	L-PFDS	250 ng/mL*
Sodium perfluoro-1-dodecanesulfonate	L-PFDoS	250 ng/mL*
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	1000 ng/mL*
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	1000 ng/mL*
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	1000 ng/mL*
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	1000 ng/mL*
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	1000 ng/mL*
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	1000 ng/mL*
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	500 ng/mL*

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質

MIXED NATIVE PFAS: SOLUTION/MIXTURE

Catalogue Number	Product (methanol solution)	Qty/Conc
用 EU-5813-NSS	5813/20 PFAS Native Solution/Mixture	1.2 mL
Perfluoro-n-butanoic acid	PFBA	2000 ng/mL
Perfluoro-n-pentanoic acid	PFPeA	2000 ng/mL
Perfluoro-n-hexanoic acid	PFHxA	2000 ng/mL
Perfluoro-n-heptanoic acid	PFHpA	2000 ng/mL
Perfluoro-n-octanoic acid	PFOA	2000 ng/mL
Perfluoro-n-nonanoic acid	PFNA	2000 ng/mL
Perfluoro-n-decanoic acid	PFDA	2000 ng/mL
Perfluoro-n-undecanoic acid	PFUdA	2000 ng/mL
Perfluoro-n-dodecanoic acid	PFDoA	2000 ng/mL
Perfluoro-n-tridecanoic acid	PFTTrDA	2000 ng/mL
Potassium perfluoro-1-butanedisulfonate	L-PFBS	2000 ng/mL
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	2000 ng/mL
Sodium perfluoro-1-hexadisulfonate	L-PFHxS	2000 ng/mL
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	2000 ng/mL
Sodium perfluoro-1-octadisulfonate	L-PFOS	2000 ng/mL
Sodium perfluoro-1-nonadisulfonate	L-PFNS	2000 ng/mL
Sodium perfluoro-1-decadisulfonate	L-PFDS	2000 ng/mL
Sodium perfluoro-1-undecadisulfonate	L-PFUdS	2000 ng/mL
Sodium perfluoro-1-dodecadisulfonate	L-PFDoS	2000 ng/mL
Sodium perfluoro-1-tridecadisulfonate	L-PFTTrDS	2000 ng/mL

MIXED MASS-LABELLED PFAS: SOLUTION/MIXTURE

Catalogue Number	Product (methanol solution)	Qty/Conc
用 MPFAC-MXA	Mass-Labelled PFCA and PFSA Solution/Mixture	1.2 mL
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	2000 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	2000 ng/mL
Perfluoro-n-(1,2,3,4- ¹³ C ₄)octanoic acid	MPFOA	2000 ng/mL
Perfluoro-n-(1,2,3,4,5- ¹³ C ₅)nonanoic acid	MPFNA	2000 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	2000 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)undecanoic acid	MPFUdA	2000 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFDoA	2000 ng/mL
Sodium perfluoro-1-hexane(¹⁸ O ₂)sulfonate	MPFHxS	2000 ng/mL
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	2000 ng/mL

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質

MIXED NATIVE PFAS: SOLUTION/MIXTURE

Catalogue Number	Product (methanol solution)	Qty/Conc
用 PFAC-24PAR	Native PFAS Precision and Recovery Standard Solution	1.2 mL
Perfluoro-n-butanoic acid	PFBA	2000 ng/mL
Perfluoro-n-pentanoic acid	PFPeA	2000 ng/mL
Perfluoro-n-hexanoic acid	PFHxA	2000 ng/mL
Perfluoro-n-heptanoic acid	PFHpA	2000 ng/mL
Perfluoro-n-octanoic acid	PFOA	2000 ng/mL
Perfluoro-n-nonanoic acid	PFNA	2000 ng/mL
Perfluoro-n-decanoic acid	PFDA	2000 ng/mL
Perfluoro-n-undecanoic acid	PFUdA	2000 ng/mL
Perfluoro-n-dodecanoic acid	PFDoA	2000 ng/mL
Perfluoro-n-tridecanoic acid	PFTrDA	2000 ng/mL
Perfluoro-n-tetradecanoic acid	PFTeDA	2000 ng/mL
Perfluoro-1-octanesulfonamide	FOSA	2000 ng/mL
N-methylperfluoro-1-octanesulfonamidoacetic acid	N-MeFOSAA	2000 ng/mL
N-ethylperfluoro-1-octanesulfonamidoacetic acid	N-EtFOSAA	2000 ng/mL
Potassium perfluoro-1-butanesulfonate	L-PFBS	2000 ng/mL
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	2000 ng/mL
Potassium perfluorohexanesulfonate (linear and branched isomers)	br-PFHxSK	2000 ng/mL
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	2000 ng/mL
Potassium perfluorooctanesulfonate (linear and branched isomers)	br-PFOSK	2000 ng/mL
Sodium perfluoro-1-nonanesulfonate	L-PFNS	2000 ng/mL
Sodium perfluoro-1-decanesulfonate	L-PFDS	2000 ng/mL
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	2000 ng/mL
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	2000 ng/mL
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	2000 ng/mL

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質

MIXED MASS-LABELLED PFAS: SOLUTION/MIXTURE

Catalogue Number	Product (methanol solution)	Qty/Conc
NEW 用 EPA-8327STK	EPA Method 8327 Native PFAS Precision and Recovery Standard Stock	1.2 mL
Perfluoro-n-butanoic acid	PFBA	2000 ng/mL
Perfluoro-n-pentanoic acid	PFPeA	2000 ng/mL
Perfluoro-n-hexanoic acid	PFHxA	2000 ng/mL
Perfluoro-n-heptanoic acid	PFHpA	2000 ng/mL
Perfluorooctanoic acid (linear and branched isomers)	br-PFOA	2000 ng/mL
Perfluorononanoic acid (linear and branched isomers)	br-PFNA	2000 ng/mL
Perfluoro-n-decanoic acid	PFDA	2000 ng/mL
Perfluoro-n-undecanoic acid	PFUdA	2000 ng/mL
Perfluoro-n-dodecanoic acid	PFDoA	2000 ng/mL
Perfluoro-n-tridecanoic acid	PFTrDA	2000 ng/mL
Perfluoro-n-tetradecanoic acid	PFTeDA	2000 ng/mL
Perfluorooctanesulfonamide (linear and branched isomers)	br-FOSA	2000 ng/mL
N-Methylperfluorooctanesulfonamidoacetic acid (linear and branched isomers)	br-NMeFOSAA	2000 ng/mL
N-Ethylperfluorooctanesulfonamidoacetic acid (linear and branched isomers)	br-NEtFOSAA	2000 ng/mL
Potassium perfluoro-1-butanefluorobutanesulfonate	L-PFBS	2000 ng/mL*
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	2000 ng/mL*
Potassium perfluorohexanesulfonate (linear and branched isomers)	br-PFHxSK	2000 ng/mL*
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	2000 ng/mL*
Potassium perfluorooctanesulfonate (linear and branched isomers)	br-PFOSK	2000 ng/mL*
Sodium perfluoro-1-nonanesulfonate	L-PFNs	2000 ng/mL*
Sodium perfluoro-1-decanesulfonate	L-PFDS	2000 ng/mL*
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	2000 ng/mL*
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	2000 ng/mL*
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	2000 ng/mL*
用 MPFAC-24ES	Mass-Labelled PFAS Extraction Standard Solution	1.2 mL
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	1000 ng/mL
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	1000 ng/mL
Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA	1000 ng/mL
Perfluoro-n-(1,2,3,4- ¹³ C ₄)heptanoic acid	M4PFHpA	1000 ng/mL
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	1000 ng/mL
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	1000 ng/mL
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₆)decanoic acid	M6PFDA	1000 ng/mL
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₇)undecanoic acid	M7PFUdA	1000 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFDoA	1000 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)tetradecanoic acid	M2PFTeDA	1000 ng/mL
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	1000 ng/mL
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	1000 ng/mL
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	1000 ng/mL
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	1000 ng/mL
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	1000 ng/mL
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	1000 ng/mL
Sodium 1H,1H,2H,2H-perfluoro(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS	1000 ng/mL
Sodium 1H,1H,2H,2H-perfluoro(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	1000 ng/mL
Sodium 1H,1H,2H,2H-perfluoro(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	1000 ng/mL

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質

MIXED NATIVE PFAS: SOLUTION/MIXTURE

Catalogue Number	Product (methanol solution)	Qty/Conc
用 PFAC30PAR	Native PFAS Precision and Recovery Standard Solution	1.2 mL
Perfluoro-n-butanoic acid	PFBA	1000 ng/mL
Perfluoro-n-pentanoic acid	PFPeA	1000 ng/mL
Perfluoro-n-hexanoic acid	PFHxA	1000 ng/mL
Perfluoro-n-heptanoic acid	PFHpA	1000 ng/mL
Perfluoro-n-octanoic acid	PFOA	1000 ng/mL
Perfluoro-n-nonanoic acid	PFNA	1000 ng/mL
Perfluoro-n-decanoic acid	PFDA	1000 ng/mL
Perfluoro-n-undecanoic acid	PFUDA	1000 ng/mL
Perfluoro-n-dodecanoic acid	PFDoA	1000 ng/mL
Perfluoro-n-tridecanoic acid	PFTDA	1000 ng/mL
Perfluoro-n-tetradecanoic acid	PFTeDA	1000 ng/mL
Perfluoro-1-butanefluoramide	FBSA	1000 ng/mL
Perfluoro-1-hexanesulfonamide	FHxSA	1000 ng/mL
Perfluoro-1-octanesulfonamide	FOSA	1000 ng/mL
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoroproxy)propanoic acid	HFPO-DA	1000 ng/mL
N-methylperfluorooctanesulfonamidoacetic acid (linear and branched isomers)	br-NMeFOSAA	1000 ng/mL
N-ethylperfluorooctanesulfonamidoacetic acid (linear and branched isomers)	br-NEtFOSAA	1000 ng/mL
Potassium perfluoro-1-butanefluoramide	L-PFBS	1000 ng/mL
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	1000 ng/mL
Potassium perfluorohexanesulfonate (linear and branched isomers)	br-PFHxSK	1000 ng/mL
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	1000 ng/mL
Potassium perfluorooctanesulfonate (linear and branched isomers)	br-PFOSK	1000 ng/mL
Sodium perfluoro-1-nonanesulfonate	L-PFNs	1000 ng/mL
Sodium perfluoro-1-decanesulfonate	L-PFDS	1000 ng/mL
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	1000 ng/mL
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	1000 ng/mL
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	1000 ng/mL
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	1000 ng/mL
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	1000 ng/mL
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	1000 ng/mL

EPA METHOD 537.1 SOLUTION/MIXTURES

Catalogue Number	Product (methanol solution)	Qty/Conc
EPA-537SS-R1	EPA Method 537.1 Surrogate Primary Dilution Standard (SUR PDS)	1.2 mL
Perfluoro-n-(1,2- ¹³ C ₂)hexanoic acid	MPFHxA	1000 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)decanoic acid	MPFDA	1000 ng/mL
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoroproxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	1000 ng/mL
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	4000 ng/mL
用 EPA-537IS	EPA Method 537.1 Internal Standard Primary Dilution Standard (IS PDS)	1.2 mL
Perfluoro-n-(1,2- ¹³ C ₂)octanoic acid	M2PFOA	1000 ng/mL
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	4000 ng/mL
Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS	3000 ng/mL

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質

EPA METHOD 537.1 SOLUTION/MIXTURES

Catalogue Number	Product (methanol solution)	Qty/Conc
用 EPA-537PDS-R1	EPA Method 537.1 Analyte Primary Dilution Standard (branched/linear mix)	1.2 mL
	Perfluoro-n-hexanoic acid	PFHxA 2000 ng/mL
	Perfluoro-n-heptanoic acid	PFHpA 2000 ng/mL
	Perfluoro-n-octanoic acid	PFOA 2000 ng/mL
	Perfluoro-n-nonanoic acid	PFNA 2000 ng/mL
	Perfluoro-n-decanoic acid	PFDA 2000 ng/mL
	Perfluoro-n-undecanoic acid	PFUdA 2000 ng/mL
	Perfluoro-n-dodecanoic acid	PFDoA 2000 ng/mL
	Perfluoro-n-tridecanoic acid	PFTTrDA 2000 ng/mL
	Perfluoro-n-tetradecanoic acid	PFTeDA 2000 ng/mL
	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoroproxy)propanoic acid	HFPO-DA 2000 ng/mL
	N-methylperfluorooctanesulfonamidoacetic acid (linear and branched isomers)	br-NMeFOSAA 2000 ng/mL
	N-ethylperfluorooctanesulfonamidoacetic acid (linear and branched isomers)	br-NEtFOSAA 2000 ng/mL
	Potassium perfluoro-1-butanefluorobutanesulfonate	L-PFBS 2000 ng/mL
	Potassium perfluorohexanesulfonate (linear and branched isomers)	br-PFHxSK 2000 ng/mL
	Potassium perfluorooctanesulfonate (linear and branched isomers)	br-PFOSK 2000 ng/mL
	Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA 2000 ng/mL
	Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS 2000 ng/mL
	Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS 2000 ng/mL
用 EPA-537PDSL-R1	EPA Method 537.1 Analyte Primary Dilution Standard (linear isomers only)	1.2 mL
	Perfluoro-n-hexanoic acid	PFHxA 2000 ng/mL
	Perfluoro-n-heptanoic acid	PFHpA 2000 ng/mL
	Perfluoro-n-octanoic acid	PFOA 2000 ng/mL
	Perfluoro-n-nonanoic acid	PFNA 2000 ng/mL
	Perfluoro-n-decanoic acid	PFDA 2000 ng/mL
	Perfluoro-n-undecanoic acid	PFUdA 2000 ng/mL
	Perfluoro-n-dodecanoic acid	PFDoA 2000 ng/mL
	Perfluoro-n-tridecanoic acid	PFTTrDA 2000 ng/mL
	Perfluoro-n-tetradecanoic acid	PFTeDA 2000 ng/mL
	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoroproxy)propanoic acid	HFPO-DA 2000 ng/mL
	N-methylperfluoro-1-octanesulfonamidoacetic acid	N-MeFOSAA 2000 ng/mL
	N-ethylperfluoro-1-octanesulfonamidoacetic acid	N-EtFOSAA 2000 ng/mL
	Potassium perfluoro-1-butanefluorobutanesulfonate	L-PFBS 2000 ng/mL
	Sodium perfluoro-1-hexanesulfonate	L-PFHxS 2000 ng/mL
	Sodium perfluoro-1-octanesulfonate	L-PFOS 2000 ng/mL
	Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA 2000 ng/mL
	Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS 2000 ng/mL
	Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS 2000 ng/mL

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質

EPA METHOD 537.1 SOLUTION/MIXTURES

Catalogue Number	Product (methanol solution)	Qty/Conc
NEW 用 EPA-537APDS	EPA Method 537.1 Native Analyte Primary Dilution Standard (br/linear mix)	1.2 mL
Perfluoro-n-hexanoic acid	PFHxA	2000 ng/mL
Perfluoro-n-heptanoic acid	PFHpA	2000 ng/mL
Perfluorooctanoic acid (linear and branched isomers)	br-PFOA	2000 ng/mL
Perfluorononanoic acid (linear and branched isomers)	br-PFNA	2000 ng/mL
Perfluoro-n-decanoic acid	PFDA	2000 ng/mL
Perfluoro-n-undecanoic acid	PFUDA	2000 ng/mL
Perfluoro-n-dodecanoic acid	PFDoA	2000 ng/mL
Perfluoro-n-tridecanoic acid	PFTTrDA	2000 ng/mL
Perfluoro-n-tetradecanoic acid	PFTeDA	2000 ng/mL
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoroproxy)propanoic acid	HFPO-DA	2000 ng/mL
N-Methylperfluorooctanesulfonamidoacetic acid (linear and branched isomers)	br-NMeFOSAA	2000 ng/mL
N-Ethylperfluorooctanesulfonamidoacetic acid (linear and branched isomers)	br-NEtFOSAA	2000 ng/mL
Potassium perfluoro-1-butanesulfonate	L-PFBS	2000 ng/mL*
Potassium perfluorohexanesulfonate (linear and branched isomers)	br-PFHxSK	2000 ng/mL*
Potassium perfluorooctanesulfonate (linear and branched isomers)	br-PFOSK	2000 ng/mL*
Sodium dodecafluoro-3H-4,8-dioxanonoate	NaDONA	2000 ng/mL*
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	2000 ng/mL*
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	2000 ng/mL*

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質

ISO 21675:2019 SOLUTION/MIXTURES

Catalogue Number	Product (methanol solution)	Qty/Conc
用 ISO 21675-NSS	ISO 21675:2019 Native Stock Solution	1.2 mL
Perfluoro-n-butanoic acid	PFBA	100 ng/mL
Perfluoro-n-pentanoic acid	PFPeA	100 ng/mL
Perfluoro-n-hexanoic acid	PFHxA	100 ng/mL
Perfluoro-n-heptanoic acid	PFHpA	100 ng/mL
Perfluoro-n-octanoic acid	PFOA	100 ng/mL
Perfluoro-n-nonanoic acid	PFNA	100 ng/mL
Perfluoro-n-decanoic acid	PFDA	100 ng/mL
Perfluoro-n-undecanoic acid	PFUdA	100 ng/mL
Perfluoro-n-dodecanoic acid	PFDoA	100 ng/mL
Perfluoro-n-tridecanoic acid	PFTTrDA	100 ng/mL
Perfluoro-n-tetradecanoic acid	PFTeDA	100 ng/mL
Perfluoro-n-hexadecanoic acid	PFHxDA	100 ng/mL
Perfluoro-n-octadecanoic acid	PFODA	100 ng/mL
Perfluoro-1-octanesulfonamide	FOSA	100 ng/mL
N-methylperfluoro-1-octanesulfonamide	N-MeFOSA	100 ng/mL
N-ethylperfluoro-1-octanesulfonamide	N-EtFOSA	100 ng/mL
N-methylperfluoro-1-octanesulfonamidoacetic acid	N-MeFOSAA	100 ng/mL
N-ethylperfluoro-1-octanesulfonamidoacetic acid	N-EtFOSAA	100 ng/mL
2H-Perfluoro-2-decenoic acid	FOUEA	100 ng/mL
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoroproxy)propanoic acid	HFPO-DA	100 ng/mL
Potassium perfluoro-1-butanefluorobutanesulfonate	L-PFBS	100 ng/mL
Sodium perfluoro-1-hexanesulfonate	L-PFHxS	100 ng/mL
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	100 ng/mL
Sodium perfluoro-1-octanesulfonate	L-PFOS	100 ng/mL
Sodium perfluoro-1-decanesulfonate	L-PFDS	100 ng/mL
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	100 ng/mL
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	100 ng/mL
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	100 ng/mL
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	100 ng/mL
Sodium bis(1H,1H,2H,2H-perfluorodecyl) phosphate	8:2diPAP	100 ng/mL

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質

ISO 21675:2019 SOLUTION/MIXTURES

Catalogue Number	Product (methanol solution)	Qty/Conc
用 ISO 21675-LSS	ISO 21675:2019 Labelled Stock Solution	1.2 mL
Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA	100 ng/mL
Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA	100 ng/mL
Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA	100 ng/mL
Perfluoro-n-(1,2,3,4- ¹³ C ₄)heptanoic acid	M4PFHpA	100 ng/mL
Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA	100 ng/mL
Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA	100 ng/mL
Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₆)decanoic acid	M6PFDA	100 ng/mL
Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₇)undecanoic acid	M7PFUdA	100 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFDoA	100 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)tetradecanoic acid	M2PFTeDA	100 ng/mL
Perfluoro-n-(1,2- ¹³ C ₂)hexadecanoic acid	M2PFHxDA	100 ng/mL
Perfluoro-1-(¹³ C ₈)octanesulfonamide	M8FOSA	100 ng/mL
N-methyl-d ₃ -perfluoro-1-octanesulfonamide	d-N-MeFOSA	100 ng/mL
N-ethyl-d ₅ -perfluoro-1-octanesulfonamide	d-N-EtFOSA	100 ng/mL
N-methyl-d ₃ -perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	100 ng/mL
N-ethyl-d ₅ -perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	100 ng/mL
2H-Perfluoro-(1,2- ¹³ C ₂)-2-decenoic acid	MFOUEA	100 ng/mL
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA	100 ng/mL
Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS	100 ng/mL
Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS	100 ng/mL
Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS	100 ng/mL
Sodium 1H,1H,2H,2H-perfluoro(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS	100 ng/mL
Sodium 1H,1H,2H,2H-perfluoro(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS	100 ng/mL
Sodium bis[1H,1H,2H,2H-(1,2- ¹³ C ₂)perfluorodecyl] phosphate	M4-8:2diPAP	100 ng/mL

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

用 第一種特定化学物質

EPA METHOD 533 SOLUTION/MIXTURES

Catalogue Number	Product (methanol solution)	Qty/Conc
用 EPA-533ES	EPA Method 533 Isotope Dilution Standard PDS	1.2 mL
	Perfluoro-n-(¹³ C ₄)butanoic acid	MPFBA 500 ng/mL
	Perfluoro-n-(¹³ C ₅)pentanoic acid	M5PFPeA 500 ng/mL
	Perfluoro-n-(1,2,3,4,6- ¹³ C ₅)hexanoic acid	M5PFHxA 500 ng/mL
	Perfluoro-n-(1,2,3,4- ¹³ C ₄)heptanoic acid	M4PFHpA 500 ng/mL
	Perfluoro-n-(¹³ C ₈)octanoic acid	M8PFOA 500 ng/mL
	Perfluoro-n-(¹³ C ₉)nonanoic acid	M9PFNA 500 ng/mL
	Perfluoro-n-(1,2,3,4,5,6- ¹³ C ₆)decanoic acid	M6PFDA 500 ng/mL
	Perfluoro-n-(1,2,3,4,5,6,7- ¹³ C ₇)undecanoic acid	M7PFUdA 500 ng/mL
	Perfluoro-n-(1,2- ¹³ C ₂)dodecanoic acid	MPFDoA 500 ng/mL
	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³ C ₃)propanoic acid	M3HFPO-DA 500 ng/mL
	Sodium perfluoro-1-(2,3,4- ¹³ C ₃)butanesulfonate	M3PFBS 500 ng/mL
	Sodium perfluoro-1-(1,2,3- ¹³ C ₃)hexanesulfonate	M3PFHxS 500 ng/mL
	Sodium perfluoro-1-(¹³ C ₈)octanesulfonate	M8PFOS 500 ng/mL
	Sodium 1H,1H,2H,2H-perfluoro(1,2- ¹³ C ₂)hexanesulfonate	M2-4:2FTS 2000 ng/mL
	Sodium 1H,1H,2H,2H-perfluoro(1,2- ¹³ C ₂)octanesulfonate	M2-6:2FTS 2000 ng/mL
	Sodium 1H,1H,2H,2H-perfluoro(1,2- ¹³ C ₂)decanesulfonate	M2-8:2FTS 2000 ng/mL
用 EPA-533IS	EPA Method 533 Isotope Performance Standard (IS PDS)	1.2 mL
	Perfluoro-n-(2,3,4- ¹³ C ₃)butanoic acid	M3PFBA 1000 ng/mL
	Perfluoro-n-(1,2- ¹³ C ₂)octanoic acid	M2PFOA 1000 ng/mL
	Sodium perfluoro-1-(1,2,3,4- ¹³ C ₄)octanesulfonate	MPFOS 3000 ng/mL

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

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EPA METHOD 533 SOLUTION/MIXTURES

Catalogue Number	Product (methanol solution)	Qty/Conc
用 EPA-533PAR	EPA Method 533 Native Analyte Primary Dilution Standard (br/linear mix)	1.2 mL
Perfluoro-n-butanoic acid	PFBA	500 ng/mL
Perfluoro-n-pentanoic acid	PFPeA	500 ng/mL
Perfluoro-n-hexanoic acid	PFHxA	500 ng/mL
Perfluoro-n-heptanoic acid	PFHpA	500 ng/mL
Perfluoro-n-octanoic acid	PFOA	500 ng/mL
Perfluoro-n-nonanoic acid	PFNA	500 ng/mL
Perfluoro-n-decanoic acid	PFDA	500 ng/mL
Perfluoro-n-undecanoic acid	PFUdA	500 ng/mL
Perfluoro-n-dodecanoic acid	PFDoA	500 ng/mL
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoroproxy)propanoic acid	HFPO-DA	500 ng/mL
Perfluoro-4-oxapentanoic acid	PF4OPeA	500 ng/mL
Perfluoro-5-oxahexanoic acid	PF5OHxA	500 ng/mL
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	500 ng/mL
Potassium perfluoro-1-butanefluorobutanesulfonate	L-PFBS	500 ng/mL
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	500 ng/mL
Potassium perfluorohexanesulfonate (linear and branched isomers)	br-PFHxSK	500 ng/mL
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	500 ng/mL
Potassium perfluorooctanesulfonate (linear and branched isomers)	br-PFOSK	500 ng/mL
Sodium 1H,1H,2H,2H-perfluorohexanesulfonate	4:2FTS	500 ng/mL
Sodium 1H,1H,2H,2H-perfluorooctanesulfonate	6:2FTS	500 ng/mL
Sodium 1H,1H,2H,2H-perfluorodecanesulfonate	8:2FTS	500 ng/mL
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	500 ng/mL
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	500 ng/mL
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	500 ng/mL
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	500 ng/mL

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

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EPA METHOD 533 SOLUTION/MIXTURES

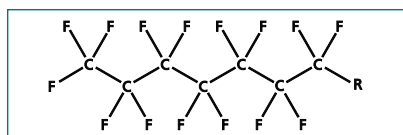
Catalogue Number	Product (methanol solution)	Qty/Conc
NEW 用 EPA-533APDS	EPA Method 533 Native Analyte Primary Dilution Standard (br/linear mix)	1.2 mL
Perfluoro-n-butanoic acid	PFBA	500 ng/mL
Perfluoro-n-pentanoic acid	PFPeA	500 ng/mL
Perfluoro-n-hexanoic acid	PFHxA	500 ng/mL
Perfluoro-n-heptanoic acid	PFHpA	500 ng/mL
Perfluorooctanoic acid (linear and branched isomers)	br-PFOA	500 ng/mL
Perfluorononanoic acid (linear and branched isomers)	br-PFNA	500 ng/mL
Perfluoro-n-decanoic acid	PFDA	500 ng/mL
Perfluoro-n-undecanoic acid	PFUdA	500 ng/mL
Perfluoro-n-dodecanoic acid	PFDoA	500 ng/mL
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)propanoic acid	HFPO-DA	500 ng/mL
Perfluoro-4-oxapentanoic acid	PF4OPeA	500 ng/mL
Perfluoro-5-oxahexanoic acid	PF5OHxA	500 ng/mL
Perfluoro-3,6-dioxaheptanoic acid	3,6-OPFHpA	500 ng/mL
Potassium perfluoro-1-butanedisulfonate	L-PFBS	500 ng/mL*
Sodium perfluoro-1-pentadisulfonate	L-PFPeS	500 ng/mL*
Potassium perfluorohexadisulfonate (linear and branched isomers)	br-PFHxSK	500 ng/mL*
Sodium perfluoro-1-heptadisulfonate	L-PFHpS	500 ng/mL*
Potassium perfluorooctadisulfonate (linear and branched isomers)	br-PFOSK	500 ng/mL*
Sodium 1H,1H,2H,2H-perfluorohexadisulfonate	4:2FTS	500 ng/mL*
Sodium 1H,1H,2H,2H-perfluorooctadisulfonate	6:2FTS	500 ng/mL*
Sodium 1H,1H,2H,2H-perfluorodecadisulfonate	8:2FTS	500 ng/mL*
Sodium dodecafluoro-3H-4,8-dioxanonanoate	NaDONA	500 ng/mL*
Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	9Cl-PF3ONS	500 ng/mL*
Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	11Cl-PF3OUdS	500 ng/mL*
Potassium perfluoro(2-ethoxyethane)sulfonate	PFEESA	500 ng/mL*

NOTE: Listed concentrations for the perfluoroalkanesulfonates are reported as the salt.

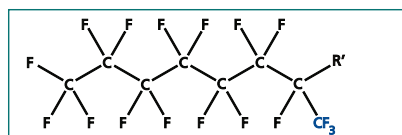
用 第一種特定化学物質

PFOS/PFOA ISOMERS

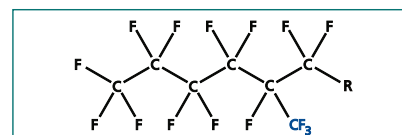
Catalogue Number	Product (methanol solution)	Qty/Anion Conc	
P1MHpS	Sodium Perfluoro-1-methylheptanesulfonate	200 µL	1.00 µg/mL
P3MHpS	Sodium Perfluoro-3-methylheptanesulfonate	200 µL	1.00 µg/mL
	Perfluoro-3-methylheptanoic acid		1.90 µg/mL
P4MHpS	Sodium Perfluoro-4-methylheptanesulfonate	200 µL	1.00 µg/mL
	Perfluoro-4-methylheptanoic acid		2.20 µg/mL
P5MHpS	Sodium Perfluoro-5-methylheptanesulfonate	200 µL	1.00 µg/mL
	Perfluoro-5-methylheptanoic acid		1.96 µg/mL
P6MHpS	Sodium Perfluoro-6-methylheptanesulfonate	200 µL	1.00 µg/mL
	Perfluoro-6-methylheptanoic acid		3.10 µg/mL
P55DMHxS	Sodium Perfluoro-5,5-dimethylhexanesulfonate	200 µL	1.00 µg/mL
	Perfluoro-5,5-dimethylhexanoic acid		1.95 µg/mL
P45DMHxS	Sodium Perfluoro-4,5-dimethylhexanesulfonate	200 µL	1.00 µg/mL
	Perfluoro-4,5-dimethylhexanoic acid		1.22 µg/mL
	Sodium Perfluoro-3,5-dimethylhexanesulfonate		0.50 µg/mL
	Perfluoro-3,5-dimethylhexanoic acid		0.60 µg/mL



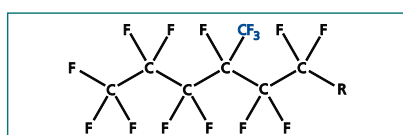
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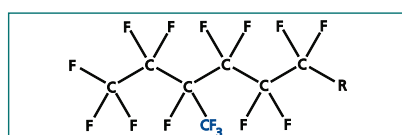
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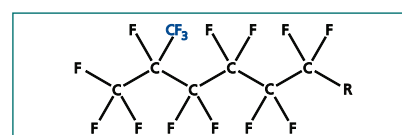
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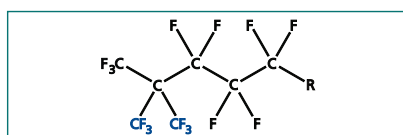
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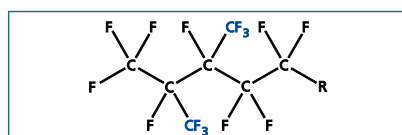
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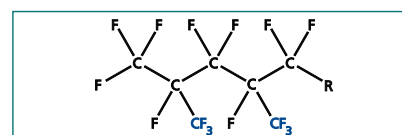
Perfluoro-6-methyl-



Perfluoro-5,5-dimethyl-



Perfluoro-4,5-dimethyl-



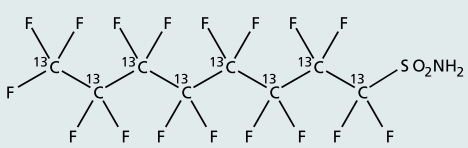
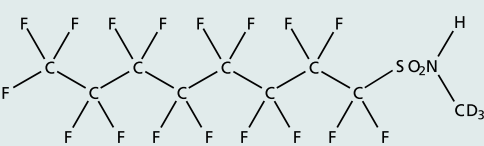
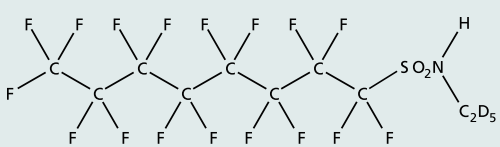
Perfluoro-3,5-dimethyl-

NOTE: R= CO₂⁻ and CF₂SO₃⁻
R'= SO₃⁻ only

NATIVE PERFLUOROALKANESULFONAMIDES (FASA)

Catalogue Number	Product (methanol solution)	Qty/Conc
FBSA-I	Perfluoro-1-butanefluoridesulfonamide (in isopropanol)	1.2 mL 50.0 µg/mL
NEW FPeSA-I	Perfluoro-1-pentanesulfonamide	1.2 mL 50.0 µg/mL
FHxSA-I	Perfluoro-1-hexanesulfonamide (in isopropanol)	1.2 mL 50.0 µg/mL
FHpSA-I	Perfluoro-1-heptanesulfonamide (in isopropanol)	1.2 mL 50.0 µg/mL
FOSA-I	Perfluoro-1-octanesulfonamide (in isopropanol)	1.2 mL 50.0 µg/mL
NEW br-FOSA	Perfluoro-1-octanesulfonamide isomeric mixture	1.2 mL 50.0 µg/mL
FDSA-I	Perfluoro-1-decanesulfonamide (in isopropanol)	1.2 mL 50.0 µg/mL
N-MeFBSA-M	N-methylperfluoro-1-butanefluoridesulfonamide	1.2 mL 50.0 µg/mL
NEW N-EtFBSA-M	N-ethylperfluoro-1-butanefluoridesulfonamide	1.2 mL 50.0 µg/mL
N-MeFOSA-M	N-methylperfluoro-1-octanesulfonamide	1.2 mL 50.0 µg/mL
NEW br-NMeFOSA	N-methylperfluoro-1-octanesulfonamide isomeric mixture	1.2 mL 50.0 µg/mL
NEW br-NEtFOSA	N-Ethylperfluorooctanesulfonamide Isomeric	1.2 mL 50.0 µg/mL
N,N-Me2FOSA-M	N,N-dimethylperfluoro-1-octanesulfonamide	1.2 mL 50.0 µg/mL
N-EtFOSA-M	N-ethylperfluoro-1-octanesulfonamide	1.2 mL 50.0 µg/mL
NEW br-NEtFOSA	N-ethylperfluoro-1-octanesulfonamide isomeric mixture	1.2 mL 50.0 µg/mL

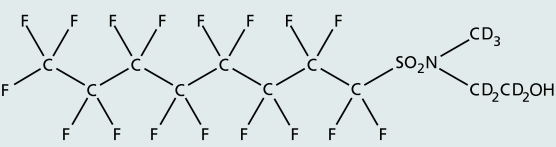
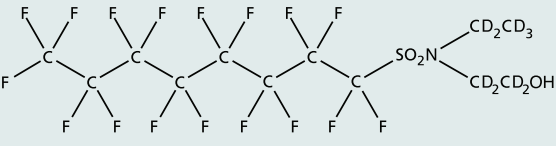
MASS-LABELLED PERFLUOROALKANESULFONAMIDES

Catalogue Number	Product
M8FOSA-I	 <p>Perfluoro-1-(¹³C₈)octanesulfonamide 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in isopropanol; >99% linear; >99% ¹³C₈</p>
d-N-MeFOSA-M	 <p>N-methyl-d₃-perfluoro-1-octanesulfonamide 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; 98% ²H₃</p>
d-N-EtFOSA-M	 <p>N-ethyl-d₅-perfluoro-1-octanesulfonamide 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; 98% ²H₅</p>

NATIVE PERFLUOROALKANESULFONAMIDOETHANOLS (N-MeFASE and N-EtFASE)

Catalogue Number	Product (methanol solution)	Qty/Conc
N-MeFBSE-M	2-(N-methylperfluoro-1-butanefluoridesulfonamido)ethanol	1.2 mL 50.0 µg/mL
N-EtFBSE-M	2-(N-ethylperfluoro-1-butanefluoridesulfonamido)ethanol	1.2 mL 50.0 µg/mL
N-MeFOSE-M	2-(N-methylperfluoro-1-octanesulfonamido)ethanol	1.2 mL 50.0 µg/mL
br-NMeFOSE	2-(N-methylperfluoro-1-octanesulfonamido)ethanol isomeric mixture	1.2 mL 50.0 µg/mL
N-EtFOSE-M	2-(N-ethylperfluoro-1-octanesulfonamido)ethanol	1.2 mL 50.0 µg/mL
br-NEtFOSE	2-(N-ethylperfluoro-1-octanesulfonamido)ethanol isomeric mixture	1.2 mL 50.0 µg/mL

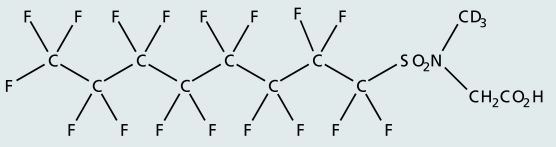
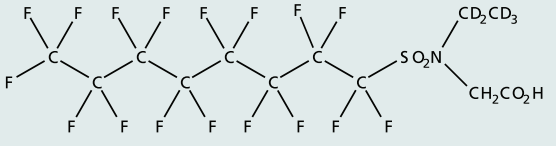
MASS-LABELLED PERFLUOROALKANESULFONAMIDOETHANOLS

Catalogue Number	Product
d7-N-MeFOSE-M 	2-(N-methyl-d ₃ -perfluoro-1-octane-sulfonamido)ethan-d ₄ -ol 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; 98% ² H ₇
d9-N-EtFOSE-M 	2-(N-ethyl-d ₅ -perfluoro-1-octane-sulfonamido)ethan-d ₄ -ol 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; 98% ² H ₉

NATIVE PERFLUOROCTANESULFONAMIDOACETIC ACIDS (FOSAA)

Catalogue Number	Product (methanol solution)	Qty/Conc
FOSAA	Perfluoro-1-octanesulfonamidoacetic acid	1.2 mL 50.0 µg/mL
N-MeFOSAA	N-methylperfluoro-1-octanesulfonamidoacetic acid	1.2 mL 50.0 µg/mL
N-EtFOSAA	N-ethylperfluoro-1-octanesulfonamidoacetic acid	1.2 mL 50.0 µg/mL
br-NMeFOSAA	N-methylperfluorooctanesulfonamidoacetic acid isomeric mix	1.2 mL 50.0 µg/mL
br-NEtFOSAA	N-ethylperfluorooctanesulfonamidoacetic acid isomeric mix	1.2 mL 50.0 µg/mL

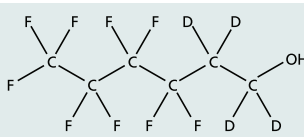
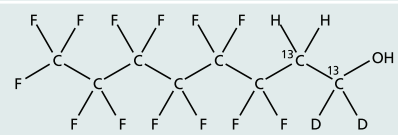
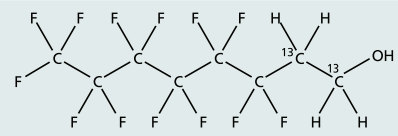
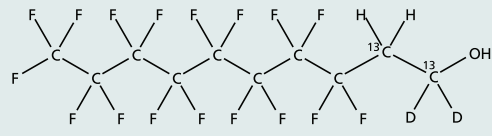
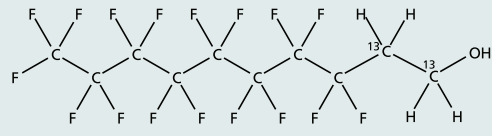
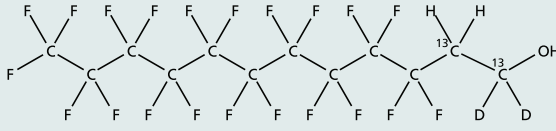
MASS-LABELLED PERFLUOROCTANESULFONAMIDOACETIC ACIDS

Catalogue Number	Product
d3-N-MeFOSAA 	N-methyl-d ₃ -perfluoro-1-octane-sulfonamidoacetic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; 98% ² H ₃
d5-N-EtFOSAA 	N-ethyl-d ₅ -perfluoro-1-octane-sulfonamidoacetic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% linear; 98% ² H ₅

NATIVE FLUOROTELOMER ALCOHOLS (X:2FTOH)

Catalogue Number	Product (methanol solution)	Qty/Conc
FBET	2-Perfluorobutyl ethanol (4:2)	1.2 mL 50.0 µg/mL
5:2sFTOH	1-Perfluoropentyl ethanol (5:2 secondary)	1.2 mL 50.0 µg/mL
FHET	2-Perfluorohexyl ethanol (6:2)	1.2 mL 50.0 µg/mL
7:2sFTOH	1-Perfluoroheptyl ethanol (7:2 secondary)	1.2 mL 50.0 µg/mL
FOET	2-Perfluorooctyl ethanol (8:2)	1.2 mL 50.0 µg/mL
FDET	2-Perfluorodecyl ethanol (10:2)	1.2 mL 50.0 µg/mL

MASS-LABELLED FLUOROTELOMER ALCOHOLS

Catalogue Number	Product
MF BET 	2-Perfluorobutyl (1,1,2,2- ² H ₄)ethanol (>97%) 1.2 mL; 48.5 µg/mL (±2.4 µg/mL); in methanol; 98% 1,1,2,2- ² H ₄
MF HET 	2-Perfluorohexyl (1,1- ² H ₂ ,1,2- ¹³ C ₂)ethanol 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; 98% 1,1- ² H ₂ , >99% 1,2- ¹³ C ₂
M2FHET 	2-Perfluorohexyl (1,2- ¹³ C ₂)ethanol 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% 1,2- ¹³ C ₂
MFOET 	2-Perfluorooctyl (1,1- ² H ₂ ,1,2- ¹³ C ₂)ethanol 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; 98% 1,1- ² H ₂ , >99% 1,2- ¹³ C ₂
M2FOET 	2-Perfluorooctyl (1,2- ¹³ C ₂)ethanol 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% 1,2- ¹³ C ₂
MFDET 	2-Perfluorodecyl (1,1- ² H ₂ ,1,2- ¹³ C ₂)ethanol 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; 98% 1,1- ² H ₂ , >99% 1,2- ¹³ C ₂

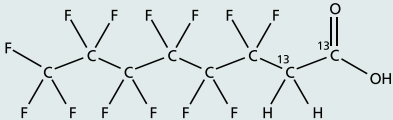
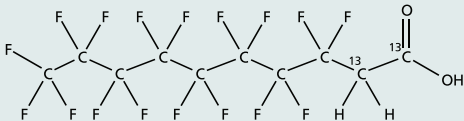
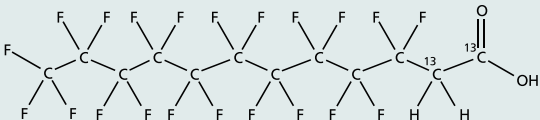
NATIVE FLUOROTELOMER CARBOXYLIC ACIDS (FTCA)

Catalogue Number	Product (isopropanol solution)	Qty/Conc
FHEA	2-Perfluorohexyl ethanoic acid (6:2)	1.2 mL 50.0 µg/mL
FOEA	2-Perfluorooctyl ethanoic acid (8:2)	1.2 mL 50.0 µg/mL
FDEA	2-Perfluorodecyl ethanoic acid (10:2)	1.2 mL 50.0 µg/mL
FPrPA	3-Perfluoropropyl propanoic acid (3:3)	1.2 mL 50.0 µg/mL
FPePA	3-Perfluoropentyl propanoic acid (5:3)	1.2 mL 50.0 µg/mL
FHpPA	3-Perfluoroheptyl propanoic acid (7:3)	1.2 mL 50.0 µg/mL

NATIVE FLUOROTELOMER CARBOXYLIC ACIDS: SOLUTION/MIXTURE

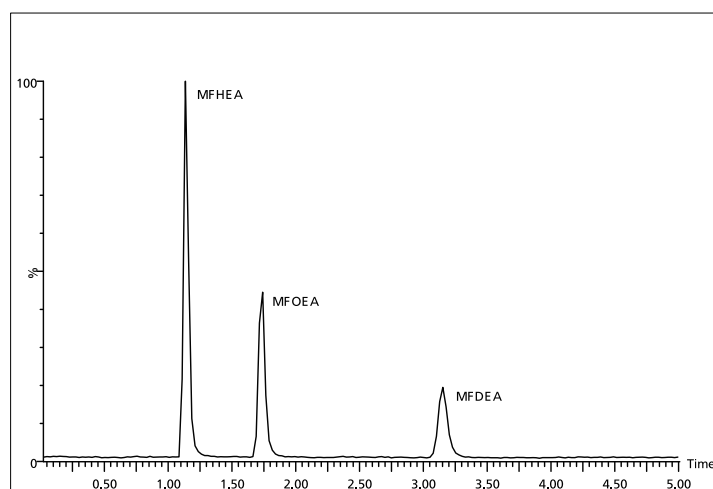
Catalogue Number	Product (isopropanol solution)	Qty/Conc
FTA-MXA	Native FTA Solution/Mixture	1.2 mL
	2-Perfluorohexyl ethanoic acid (6:2)	FHEA 2.00 µg/mL
	2-Perfluorooctyl ethanoic acid (8:2)	FOEA 2.00 µg/mL
	2-Perfluorodecyl ethanoic acid (10:2)	FDEA 2.00 µg/mL

MASS-LABELLED FLUOROTELOMER CARBOXYLIC ACIDS

Catalogue Number	Product
MFHEA	 <p>2-Perfluorohexyl (1,2-¹³C₂)ethanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in isopropanol; >99% ¹³C₂</p>
MFOEA	 <p>2-Perfluorooctyl (1,2-¹³C₂)ethanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in isopropanol; >99% ¹³C₂</p>
MFDEA	 <p>2-Perfluorodecyl (1,2-¹³C₂)ethanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in isopropanol; >99% ¹³C₂</p>

MASS-LABELLED FLUOROTELOMER CARBOXYLIC ACIDS: SOLUTION/MIXTURE

Catalogue Number	Product (isopropanol solution)	Qty/Conc
MFTA-MXA	Mass-Labelled FTA Solution/Mixture	1.2 mL
	2-Perfluorohexyl (1,2- ¹³ C ₂)ethanoic acid (6:2)	MFHEA 2.00 µg/mL
	2-Perfluorooctyl (1,2- ¹³ C ₂)ethanoic acid (8:2)	MFOEA 2.00 µg/mL
	2-Perfluorodecyl (1,2- ¹³ C ₂)ethanoic acid (10:2)	MFDEA 2.00 µg/mL

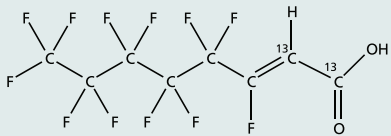
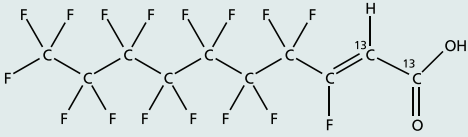
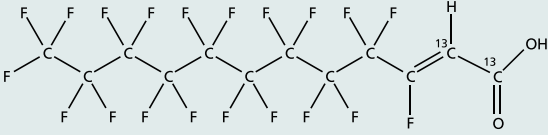


LC/MS Data for MFTA-MXA on an Acquity UPLC BEH Shield RP₁₈ column.

NATIVE FLUOROTELOMER UNSATURATED CARBOXYLIC ACIDS (FTUCA)

Catalogue Number	Product (isopropanol solution)	Qty/Conc
FHUEA	2H-Perfluoro-2-octenoic acid (6:2)	1.2 mL 50.0 µg/mL
FOUEA	2H-Perfluoro-2-decenoic acid (8:2)	1.2 mL 50.0 µg/mL
FDUEA	2H-Perfluoro-2-dodecenoic acid (10:2)	1.2 mL 50.0 µg/mL

MASS-LABELLED FLUOROTELOMER UNSATURATED CARBOXYLIC ACIDS

Catalogue Number	Product
MFHUEA	 <p>2H-Perfluoro-(1,2-¹³C₂)-2-octenoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in isopropanol; >99% ¹³C₂</p>
MFOUEA	 <p>2H-Perfluoro-(1,2-¹³C₂)-2-decenoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in isopropanol; >99% ¹³C₂</p>
MFDUEA	 <p>2H-Perfluoro-(1,2-¹³C₂)-2-dodecenoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in isopropanol; >99% ¹³C₂</p>

NATIVE CHLOROPERFLUOROALKYL ETHER SULFONATES (CI-PFESA)

Catalogue Number	Product (methanol solution)	Qty/Conc
9CI-PF3ONS	Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate	1.2 mL 50.0 µg/mL
11CI-PF30UdS	Potassium 11-chloroeicosafluoro-3-oxaundecane-1-sulfonate	1.2 mL 50.0 µg/mL

NATIVE PER- AND POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS (PFECA)

Catalogue Number	Product (methanol solution)	Qty/Conc
NaDONA *	Sodium dodecafluoro-3H-4,8-dioxanonoate	1.2 mL 50.0 µg/mL
PF40PeA	Perfluoro-4-oxapentanoic acid (PFMPA)	1.2 mL 50.0 µg/mL
PF50HxA	Perfluoro-5-oxahexanoic acid (PFMBA)	1.2 mL 50.0 µg/mL
3,6-OPFHpA	Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	1.2 mL 50.0 µg/mL

*NOTE: Listed concentration is reported as the salt.

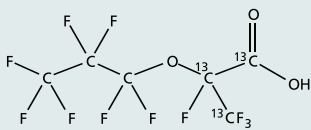
NATIVE PERFLUOROALKYL ETHER SULFONATES (PFESA)

Catalogue Number	Product (methanol solution)	Qty/Conc
PFEEESA	Potassium perfluoro(2-ethoxyethane)sulfonate	1.2 mL 50.0 µg/mL

NATIVE HEXAFLUOROPROPYLENE OXIDE DIMER ACID (HFPO-DA)

Catalogue Number	Product (methanol solution)	Qty/Conc
HFPO-DA	2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid (GenX)	1.2 mL 50.0 µg/mL

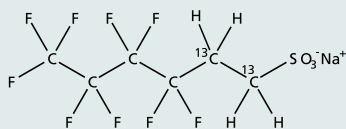
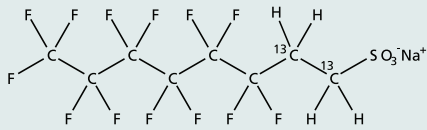
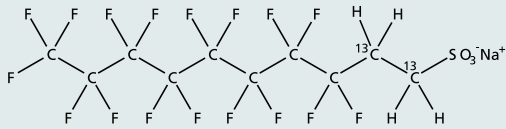
MASS-LABELLED HEXAFLUOROPROPYLENE OXIDE DIMER ACID

Catalogue Number	Product
M3HFPO-DA	 <p>2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)(¹³C₃)propanoic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; > 99% ¹³C₃</p>

NATIVE FLUOROTELOMER SULFONATES (X:2FTS)

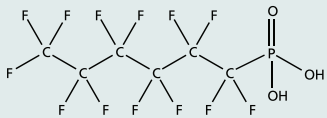
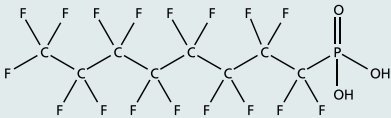
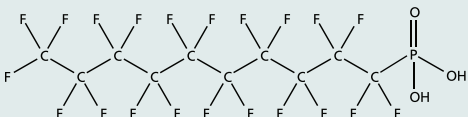
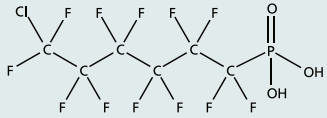
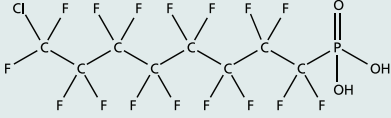
Catalogue Number	Product (methanol solution)	Qty/Conc
4:2FTS	Sodium 1H,1H,2H,2H-perfluorohexanesulfonate (4:2)	1.2 mL 50.0 µg/mL
6:2FTS	Sodium 1H,1H,2H,2H-perfluorooctanesulfonate (6:2)	1.2 mL 50.0 µg/mL
8:2FTS	Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	1.2 mL 50.0 µg/mL
10:2FTS	Sodium 1H,1H,2H,2H-perfluorododecane sulfonate (10:2)	1.2 mL 50.0 µg/mL

MASS-LABELLED FLUOROTELOMER SULFONATES

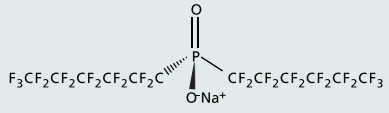
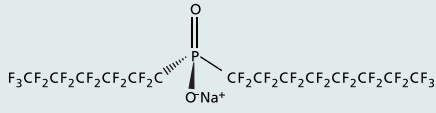
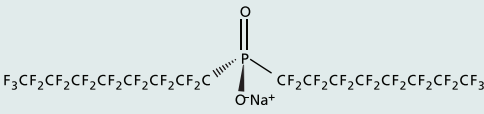
Catalogue Number	Product
M2-4:2FTS	 <p>Sodium 1H,1H,2H,2H-perfluoro(1,2-¹³C₂)hexanesulfonate (4:2) 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% ¹³C₂</p>
M2-6:2FTS	 <p>Sodium 1H,1H,2H,2H-perfluoro(1,2-¹³C₂)octanesulfonate (6:2) 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% ¹³C₂</p>
M2-8:2FTS	 <p>Sodium 1H,1H,2H,2H-perfluoro(1,2-¹³C₂)decane sulfonate (8:2) 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% ¹³C₂</p>

NOTE: Listed concentrations are reported as the salt.

NATIVE PERFLUOROALKYLPHOSPHONIC ACIDS (PFAPA)

Catalogue Number	Product
PFHxPA 	Perfluorohexylphosphonic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol
PFOPA 	Perfluorooctylphosphonic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol
PFDDPA 	Perfluorodecylphosphonic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol
Cl-PFHxPA 	6-Chloroperfluorohexylphosphonic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol
Cl-PFOPA 	8-Chloroperfluorooctylphosphonic acid 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol

NATIVE SODIUM PERFLUOROALKYL PHOSPHINATES (X:XPFPi)

Catalogue Number	Product
6:6PFPi 	Sodium bis(perfluorohexyl)phosphinate 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol
6:8PFPi 	Sodium perfluorohexylperfluorooctylphosphinate 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol
8:8PFPi 	Sodium bis(perfluorooctyl)phosphinate 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol

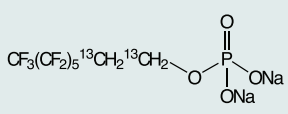
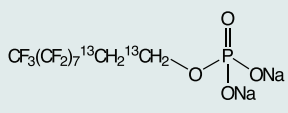
NATIVE POLYFLUOROALKYL PHOSPHATE MONO-ESTERS (PAP)

Catalogue Number	Product (methanol solution)	Qty/Conc
6:2PAP	Sodium 1H,1H,2H,2H-perfluorooctyl phosphate	1.2 mL 50.0 µg/mL
8:2PAP	Sodium 1H,1H,2H,2H-perfluorodecyl phosphate	1.2 mL 50.0 µg/mL

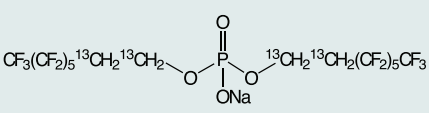
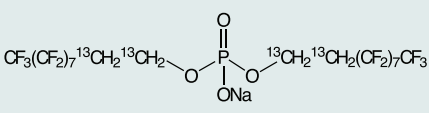
NATIVE POLYFLUOROALKYL PHOSPHATE DI-ESTERS (diPAP)

Catalogue Number	Product (methanol solution)	Qty/Conc
6:2diPAP	Sodium bis(1H,1H,2H,2H-perfluorooctyl) phosphate	1.2 mL 50.0 µg/mL
6:2/8:2diPAP	Sodium (1H,1H,2H,2H-perfluorooctyl-1H,1H,2H,2H-perfluorodecyl) phosphate	1.2 mL 50.0 µg/mL
8:2diPAP	Sodium bis(1H,1H,2H,2H-perfluorodecyl) phosphate	1.2 mL 50.0 µg/mL

MASS-LABELLED POLYFLUOROALKYL PHOSPHATE MONO-ESTERS

Catalogue Number	Product
M2-6:2PAP	 <p>Sodium 1H,1H,2H,2H-(1,2-¹³C₂)perfluorooctyl phosphate 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% ¹³C₂</p>
M2-8:2PAP	 <p>Sodium 1H,1H,2H,2H-(1,2-¹³C₂)perfluorodecyl phosphate 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% ¹³C₂</p>

MASS-LABELLED POLYFLUOROALKYL PHOSPHATE DI-ESTERS

Catalogue Number	Product
M4-6:2diPAP	 <p>Sodium bis[1H,1H,2H,2H-(1,2-¹³C₂)perfluorooctyl] phosphate 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% ¹³C₄</p>
M4-8:2diPAP	 <p>Sodium bis[1H,1H,2H,2H-(1,2-¹³C₂)perfluorodecyl] phosphate 1.2 mL; 50.0 µg/mL (±2.5 µg/mL); in methanol; >99% ¹³C₄</p>

NATIVE POLYFLUOROALKYL PHOSPHATE ESTERS (SAmPAP)

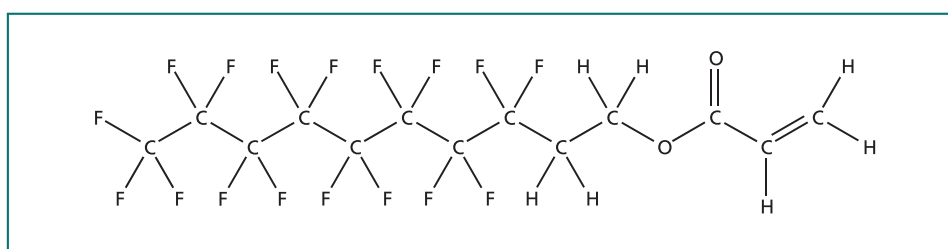
Catalogue Number	Product (methanol solution)	Qty/Conc
SAmPAP	Sodium 2-(N-ethylperfluorooctane-1-sulfonamido)ethyl phosphate	1.2 mL 50.0 µg/mL
diSAmPAP	Sodium bis[2-(N-ethylperfluorooctane-1-sulfonamido)ethyl] phosphate	1.2 mL 50.0 µg/mL

NATIVE FLUOROTELOMER ACRYLATES (X:2FTAcr)

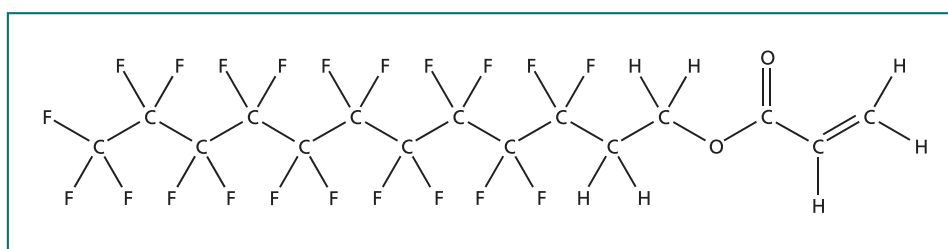
Catalogue Number	Product (isooctane solution)	Qty/Conc
8:2FTAcr	1H,1H,2H,2H-Perfluorodecyl acrylate	1.2 mL 50.0 µg/mL
10:2FTAcr	1H,1H,2H,2H-Perfluorododecyl acrylate (>95%)	1.2 mL 47.9 µg/mL

NATIVE FLUOROTELOMER ACETATES (X:2FTOAc)

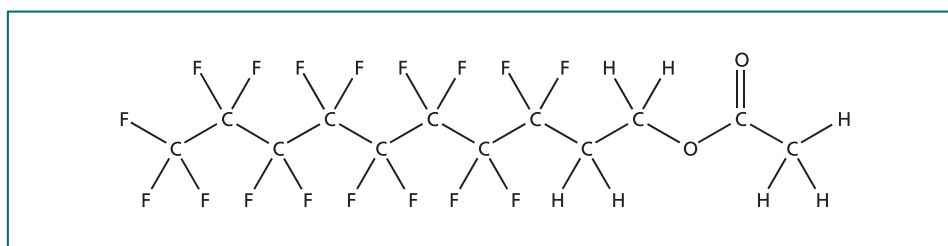
Catalogue Number	Product (isooctane solution)	Qty/Conc
8:2FTOAc	1H,1H,2H,2H-Perfluorodecyl acetate (>97%)	1.2 mL 48.5 µg/mL
10:2FTOAc	1H,1H,2H,2H-Perfluorododecyl acetate	1.2 mL 50.0 µg/mL



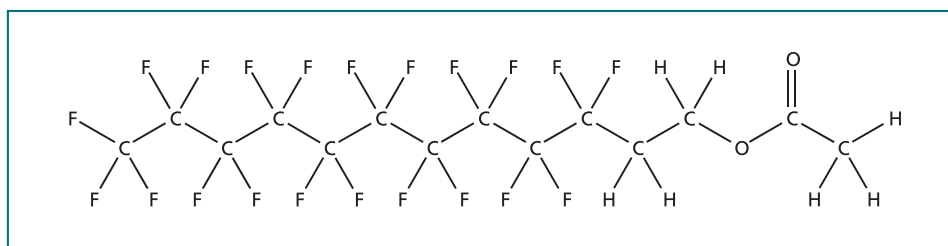
8:2FTAcr



10:2FTAcr



8:2FTOAc

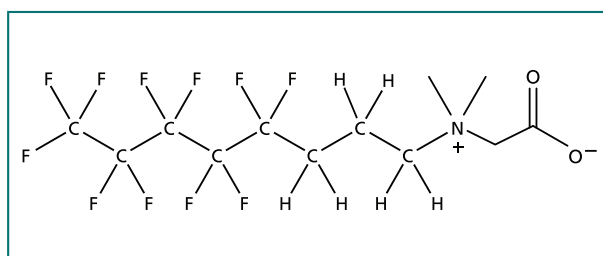


10:2FTOAc

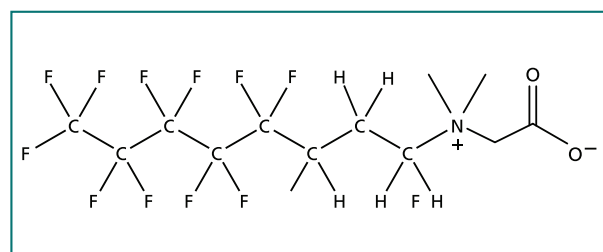
NATIVE CATIONIC/ZWITTERIONIC PFAS

Catalogue Number	Product (methanol solution)	Qty/Conc
N-AP-FHxSA	N-(3-dimethylaminopropan-1-yl)perfluoro-1-hexanesulfonamide	1.2 mL 50.0 µg/mL
N-TAmP-FHxSA	N-[3-(perfluoro-1-hexanesulfonamido)propan-1-yl]-N,N,N-trimethylammonium	1.2 mL 50.0 µg/mL
N-CMAmP-6:2FOSA	N-(carboxymethyl)-N,N-dimethyl-N-[3-(1H,1H,2H,2H-perfluoro-1-octanesulfonamido)propan-1-yl]ammonium (6:2FTAB)	1.2 mL 50.0 µg/mL
5:3FTB	2-[(4,4,5,5,6,6,7,7,8,8-Undecafluorooctyl)dimethylammonio]acetate	1.2 mL 50.0 µg/mL
5:1:2FTB	2-[(3,4,4,5,5,6,6,7,7,8,8-Dodecafluorooctyl)dimethylammonio]acetate	1.2 mL 50.0 µg/mL

NOTE: The charge of these compounds will depend on pH.



5:3FTB



5:1:2FTB

付録

クイックリファレンスガイド

PFAS製品の取扱いガイドライン

警告

弊社のPFAS溶液はメタノール・イソプロパノール溶液として提供されています。最大濃度は50ug/ml、0.005%となっておりますが、これら化合物は有毒であり、以下の注意事項を厳守し、取り扱う必要があります。人体に触れたり、飲み込んだりすることがないように扱ってください。毒性の警告表示がなかったとしても、健康被害が発生しない製品として認識することがないようにしてください。



注意

これらの素材は危険物取り扱いについて訓練を受けた方のみが使用してください。取り扱う際は常にドラフトや手袋、目の保護器具、防護服を使用する必要があります。

受け取り・取扱い・保管について

結晶性物質がある場合を除き、弊社の標準評価溶液は滅菌密閉かつ評価済みのガラス製アンプルで輸送されています。受け取り後は、アンプルの破損・漏れに注意し冷蔵庫に直立状態で保管してください。

開封前には、溶液をアンプルに沈ませてください。必要であれば軽くアンプルを指で弾きます。添えられたリングでアンプル直立に保ち、上部を取り外します。ガラスコンテナに製品を移し、蓋をして保管してください。

追加の取扱いにおける推奨事項がある場合は、証明書に記載しています。

このガイドに記載されたSRM推移はあくまで開始点のみです。

廃棄について

本製品を使用するにあたり発生した廃棄物は有害であり、国や地域の規定に法って処理する必要があります。承認を受けた廃棄業者に委託してください。

正確性について

溶液は、純度の高い結晶性物質で作られています。結晶性物質は、外部で点検を受けた、ISO/IEC17025 準規の研究所にある微量天秤で計測されています。溶液は、精製された溶媒で溶解されて作られています。計測用フラスコや、それに続く希釈に使用するピペットはクラスAの誤差基準で、ISO/IEC 17025準規研究所と同一基準のものです。溶液の製造に関わる最大誤差は $\pm 5\%$ です。

研究室間認定について

WELLINGTON LABORATORIESは様々な研究室間の研究に製品を提供してきました。2005年以降、様々なラウンドロビン分析で試験を受けました。これらの研究の資料が必要な場合はご連絡ください。

WELLINGTON LABORATORIESは、弊社製品の正確性を確認するために研究室間の研究に参加していくことを今後も計画しております。

使用期限・保存可能期間について

製品の使用期限や保存可能期間を見極めるため、特定の検体の変質や品質低下を測定してください。フッ素化合物は、現在の化学研究文献において安定しているとされていますが、化合物は溶液として提供されたことはないため、観測されたことのない分解経路が発生することがあります。

よって、引き続き化合物の安定性を以下の方法で継続的に測定します：

- 1) 新たに作られた溶液と古い溶液をLC/MS GC/MSで
- 2) 保管中の溶液をLC/MS GCMSで

従って、安定性についての研究は進行中のものです。

実際の「使用期限」はありませんが、溶液が正確であるのは、未開封のアンプルの場合、輸送後2年程度と判断しています。



塩形態におけるPFAS分析物の調整の報告

塩は、以下に引用されている方程式と方法に従って、測定された質量が塩含有量に対して補正されている場合、標準試料の原液として許容されます。

$$\text{mass}(\text{acid form}) = \text{mass}(\text{salt}) \times \frac{MW_{\text{acid}}}{MW_{\text{salt}}}$$

EPA試験法 537.1

固相抽出と高速液体クロマトグラフィー/タンデム質量分析法を用いた飲料水内の全フッ素化およびポリフッ素化アルキル物質の測定

—2018年11月

EPA試験法 533

同位体希釈分析陰イオン交換クロマトグラフィーと高速液体クロマトグラフィー/タンデム質量分析法を用いた飲料水内の全フッ素化およびポリフッ素化アルキル物質の測定

—2019年11月

Commonly Used Units of Measure

wt/wt basis				wt/vol basis			
ppm	mg/kg	µg/g	ng/mg	ppm	mg/L	µg/mL	ng/µL
ppb	µg/kg	ng/g	pg/mg	ppb	µg/L	ng/mL	pg/µL
ppt	ng/kg	pg/g	fg/mg	ppt	ng/L	pg/mL	fg/µL
ppq	pg/kg	fg/g	ag/mg	ppq	pg/L	fg/mL	ag/µL

Conversion Factors

Prefix	Symbol	Factor	Fraction
centi	c	10 ⁻²	= 1/100 part per hundred
milli	m	10 ⁻³	= 1/1,000 part per thousand
micro	µ	10 ⁻⁶	= 1/1,000,000 part per million (ppm)
nano	n	10 ⁻⁹	= 1/1,000,000,000 part per billion (ppb)
pico	p	10 ⁻¹²	= 1/1,000,000,000,000 part per trillion (ppt)
femto	f	10 ⁻¹⁵	= 1/1,000,000,000,000,000 part per quadrillion (ppq)
atto	a	10 ⁻¹⁸	= 1/1,000,000,000,000,000,000 part per quintillion
zepto	z	10 ⁻²¹	= 1/1,000,000,000,000,000,000,000 part per sextillion
yocto	y	10 ⁻²⁴	= 1/1,000,000,000,000,000,000,000,000 part per septillion

The masses utilized to calculate the molecular weights stated in this reference guide are as follows:

¹²C or C = 12.0107 (representing the average atomic mass of carbon)

¹³C = 13.003355

O = 15.9994

N = 14.0067

Na = 22.9898

¹⁸O = 17.9992

H = 1.00794

F = 18.9984

K = 39.0983

²H = 2.0141

S = 32.065

P = 30.97376

Cl = 35.453

Summary of PFAS Analyte Information

Perfluoroalkanesulfonates (PFASs)

Compound	Molecular Formula	Molecular Weight Salt	Molecular Weight Acid	ESI- SRM Transition 1	ESI- SRM Transition 2
NaPFPrS	C ₃ F ₇ SO ₃ Na	272.0739	250.0920	249 > 80	249 > 99
KPFBS	C ₄ F ₉ SO ₃ K	338.1899	300.0995	299 > 80	299 > 99
NaPFBS [M+3]	¹³ C ₃ ¹² CF ₉ SO ₃ Na	325.0594	303.0775	302 > 80	302 > 99
NaPFPeS	C ₅ F ₁₁ SO ₃ Na	372.0889	350.1070	349 > 80	349 > 99
KPFHxS	C ₆ F ₁₃ SO ₃ K	438.2049	400.1145	399 > 80	399 > 99
NaPFHxS	C ₆ F ₁₃ SO ₃ Na	422.0964	400.1145	399 > 80	399 > 99
NaPFHxS [M+3]	¹³ C ₃ ¹² C ₃ F ₁₃ SO ₃ Na	425.0744	403.0925	402 > 80	402 > 99
NaPFHxS [M+4]	C ₆ F ₁₃ S ¹⁸ O ₂ ONa	426.0960	404.1141	403 > 84	403 > 103
NaPFHpS	C ₇ F ₁₅ SO ₃ Na	472.1039	450.1220	449 > 80	449 > 99
KPFECHS	C ₈ F ₁₅ SO ₃ K	500.2231	462.1327	461 > 381	461 > 99
NaCl-PFOS	C ₈ ClF ₁₆ SO ₃ Na	538.5660	516.5841	515 > 80	515 > 99
KPFOS	C ₈ F ₁₇ SO ₃ K	538.2199	500.1295	499 > 80	499 > 99
NaPFOS	C ₈ F ₁₇ SO ₃ Na	522.1114	500.1295	499 > 80	499 > 99
NaPFOS [M+4]	¹³ C ₄ ¹² C ₄ F ₁₇ SO ₃ Na	526.0820	504.1002	503 > 80	503 > 99
NaPFOS [M+8]	¹³ C ₈ F ₁₇ SO ₃ Na	530.0526	508.0708	507 > 80	507 > 99
NaPFNS	C ₉ F ₁₉ SO ₃ Na	572.1189	550.1370	549 > 80	549 > 99
NaPFDS	C ₁₀ F ₂₁ SO ₃ Na	622.1264	600.1445	599 > 80	599 > 99
NaPFUdS	C ₁₁ F ₂₃ SO ₃ Na	672.1339	650.1520	649 > 80	649 > 99
NaPFDoS	C ₁₂ F ₂₅ SO ₃ Na	722.1414	700.1595	699 > 80	699 > 99
NaPFTrDS	C ₁₃ F ₂₇ SO ₃ Na	772.1489	750.1670	749 > 80	749 > 99

Chloroperfluoroalkyl Ether Sulfonates (Cl-PFESA)

Compound	Molecular Formula	Molecular Weight Salt	Molecular Weight Acid	ESI- SRM Transition 1	ESI- SRM Transition 2
9Cl-PF3ONS	C ₈ F ₁₆ ClSO ₄ K	570.6739	532.5835	531 > 351	531 > 83
11Cl-PF3OUdS	C ₁₀ F ₂₀ ClSO ₄ K	670.6889	632.5985	631 > 451	631 > 83

Perfluoroalkyl Ether Sulfonate (PFESA)

Compound	Molecular Formula	Molecular Weight Salt	Molecular Weight Acid	ESI- SRM Transition 1	ESI- SRM Transition 2
PFEESA	C ₄ F ₉ SO ₄ K	354.1893	316.0989	315 > 135	315 > 69

Fluorotelomer Sulfonates (X:2FTS)

Compound	Molecular Formula	Molecular Weight Salt	Molecular Weight Acid	ESI- SRM Transition 1	ESI- SRM Transition 2
4:2FTS	C ₆ H ₄ F ₉ SO ₃ Na	350.1346	328.1527	327 > 307	327 > 81
4:2FTS [M+2]	¹³ C ₂ ¹² C ₄ H ₄ F ₉ SO ₃ Na	352.1199	330.1380	329 > 81	329 > 309
6:2FTS	C ₈ H ₄ F ₁₃ SO ₃ Na	450.1496	428.1677	427 > 407	427 > 81
6:2FTS [M+2]	¹³ C ₂ ¹² C ₆ H ₄ F ₁₃ SO ₃ Na	452.1349	430.1530	429 > 81	429 > 409
8:2FTS	C ₁₀ H ₄ F ₁₇ SO ₃ Na	550.1646	528.1827	527 > 507	527 > 81
8:2FTS [M+2]	¹³ C ₂ ¹² C ₈ H ₄ F ₁₇ SO ₃ Na	552.1499	530.1680	529 > 81	529 > 509
10:2FTS	C ₁₂ H ₄ F ₂₁ SO ₃ Na	650.1796	628.1977	627 > 607	627 > 81

Summary of PFAS Analyte Information

Perfluoroalkylcarboxylic Acids (PFCA)

Compound	Molecular Formula	Molecular Weight	ESI- SRM Transition 1	ESI- SRM Transition 2
PFBA	C ₄ HF ₇ O ₂	214.0383	213 > 169	-
PFBA [M+3]	¹³ C ₃ ¹² CHF ₇ O ₂	217.0163	216 > 172	-
PFBA [M+4]	¹³ C ₄ HF ₇ O ₂	218.0090	217 > 172	-
PFPeA	C ₅ HF ₉ O ₂	264.0458	263 > 219	263 > 69
PFPeA [M+3]	¹³ C ₃ ¹² C ₂ HF ₉ O ₂	267.0238	266 > 222	266 > 70
PFPeA [M+5]	¹³ C ₅ HF ₉ O ₂	269.0091	268 > 223	268 > 70
PFHxA	C ₆ HF ₁₁ O ₂	314.0533	313 > 269	313 > 119
PFHxA [M+2]	¹³ C ₂ ¹² C ₄ HF ₁₁ O ₂	316.0387	315 > 270	315 > 119
PFHxA [M+5]	¹³ C ₅ ¹² C ₁ HF ₁₁ O ₂	319.0166	318 > 273	318 > 120
PFHpA	C ₇ HF ₁₃ O ₂	364.0608	363 > 319	363 > 169
PFHpA [M+4]	¹³ C ₄ ¹² C ₃ HF ₁₃ O ₂	368.0315	367 > 322	367 > 169
PFOA	C ₈ HF ₁₅ O ₂	414.0683	413 > 369	413 > 169
PFOA [M+2]	¹³ C ₂ ¹² C ₆ HF ₁₅ O ₂	416.0537	415 > 370	415 > 169
PFOA [M+4]	¹³ C ₄ ¹² C ₄ HF ₁₅ O ₂	418.0390	417 > 372	417 > 169
PFOA [M+8]	¹³ C ₈ HF ₁₅ O ₂	422.0096	421 > 376	421 > 172
T-PFOA	C ₈ F ₁₅ O ₂ NH ₄	431.0989	413 > 369	413 > 169
PFNA	C ₉ HF ₁₇ O ₂	464.0758	463 > 419	463 > 219
PFNA [M+5]	¹³ C ₅ ¹² C ₄ HF ₁₇ O ₂	469.0391	468 > 423	468 > 219
PFNA [M+9]	¹³ C ₉ HF ₁₇ O ₂	473.0097	472 > 427	472 > 223
PFDA	C ₁₀ HF ₁₉ O ₂	514.0833	513 > 469	513 > 219
PFDA [M+2]	¹³ C ₂ ¹² C ₈ HF ₁₉ O ₂	516.0687	515 > 470	515 > 219
PFDA [M+6]	¹³ C ₆ ¹² C ₄ HF ₁₉ O ₂	520.0393	519 > 474	519 > 219
PFUdA	C ₁₁ HF ₂₁ O ₂	564.0908	563 > 519	563 > 269
PFUdA [M+2]	¹³ C ₂ ¹² C ₉ HF ₂₁ O ₂	566.0762	565 > 520	565 > 269
PFUdA [M+7]	¹³ C ₇ ¹² C ₄ HF ₂₁ O ₂	571.0394	570 > 525	570 > 270
PFDoA	C ₁₂ HF ₂₃ O ₂	614.0983	613 > 569	613 > 269
PFDoA [M+2]	¹³ C ₂ ¹² C ₁₀ HF ₂₃ O ₂	616.0837	615 > 570	615 > 269
PFTrDA	C ₁₃ HF ₂₅ O ₂	664.1058	663 > 619	663 > 269
PFTeDA	C ₁₄ HF ₂₇ O ₂	714.1133	713 > 669	713 > 369
MPFTeDA [M+2]	¹³ C ₂ ¹² C ₁₂ HF ₂₇ O ₂	716.0987	715 > 670	715 > 369
PFHxDA	C ₁₆ HF ₃₁ O ₂	814.1283	813 > 769	813 > 369
MPFHxDA [M+2]	¹³ C ₂ ¹² C ₁₄ HF ₃₁ O ₂	816.1137	815 > 770	815 > 369
PFODA	C ₁₈ HF ₃₅ O ₂	914.1433	913 > 869	913 > 369

Hexafluoropropylene Oxide Dimer Acid

Compound	Molecular Formula	Molecular Weight	ESI- SRM Transition 1	ESI- SRM Transition 2
HFPO-DA	C ₆ HF ₁₁ O ₃	330.0527	285 > 169	329 > 285
HFPO-DA [M+3]	¹³ C ₃ ¹² C ₃ HF ₁₁ O ₃	333.0307	287 > 169	332 > 287

Summary of PFAS Analyte Information

Per- and Polyfluoroalkyl Ether Carboxylic Acids (PFECA)

Compound	Molecular Formula	Molecular Weight Salt	Molecular Weight Acid	ESI- SRM Transition 1	ESI- SRM Transition 2
NaDONA	C ₇ HF ₁₂ O ₄ Na	400.0510	378.0692	377 > 251	377 > 85
PF4OPeA	C ₄ HF ₇ O ₃	-	230.0377	229 > 85	229 > 185
PF5OHxA	C ₅ HF ₉ O ₃	-	280.0452	279 > 85	279 > 235
3,6-OPFHpA	C ₅ HF ₉ O ₄	-	296.0446	295 > 201	201 > 85

Perfluoroalkanesulfonamides (FASA)

Compound	Molecular Formula	Molecular Weight	ESI- SRM Transition 1	ESI- SRM Transition 2
FBSA	C ₄ H ₂ F ₉ NO ₂ S	299.1148	298 > 78	298 > 119
N-MeFBSA	C ₅ H ₄ F ₉ NO ₂ S	313.1414	312 > 219	312 > 112
N-EtFBSA	C ₆ H ₆ F ₉ NO ₂ S	327.1679	326 > 219	326 > 126
FPeSA	C ₅ H ₂ F ₁₁ NO ₂ S	349.1223	348 > 78	348 > 119
FHxSA	C ₆ H ₂ F ₁₃ NO ₂ S	399.1298	398 > 78	398 > 169
FHpSA	C ₇ H ₂ F ₁₅ NO ₂ S	449.1373	448 > 78	448 > 169
FOSA	C ₈ H ₂ F ₁₇ NO ₂ S	499.1448	498 > 78	498 > 169
FOSA [M+8]	¹³ C ₈ H ₂ F ₁₇ NO ₂ S	507.0860	506 > 78	506 > 172
N-MeFOSA	C ₉ H ₄ F ₁₇ NO ₂ S	513.1714	512 > 219	512 > 169
N-MeFOSA [M+3]	C ₉ ² H ₃ HF ₁₇ NO ₂ S	516.1898	515 > 219	515 > 169
N-EtFOSA	C ₁₀ H ₆ F ₁₇ NO ₂ S	527.1979	526 > 219	526 > 169
N-EtFOSA [M+5]	C ₁₀ ² H ₅ HF ₁₇ NO ₂ S	532.2287	531 > 219	531 > 169
FDSA	C ₁₀ H ₂ F ₂₁ NO ₂ S	599.1598	598 > 78	598 > 169

Perfluoroalkanesulfonamidoethanols (N-MeFASE and N-EtFASE)

Compound	Molecular Formula	Molecular Weight	ESI- SRM Transition 1	ESI- SRM Transition 2
N-MeFBSE	C ₇ H ₈ F ₉ NO ₃ S	357.1939	356 > 122	356 > 80
N-EtFBSE	C ₈ H ₁₀ F ₉ NO ₃ S	371.2205	370 > 136	370 > 80
N-MeFOSE	C ₁₁ H ₈ F ₁₇ NO ₃ S	557.2239	556 > 122	556 > 80
N-MeFOSE [M+7]	C ₁₁ ² H ₇ HF ₁₇ NO ₃ S	564.2670	563 > 126	563 > 80
N-EtFOSE	C ₁₂ H ₁₀ F ₁₇ NO ₃ S	571.2505	570 > 136	570 > 80
N-EtFOSE [M+9]	C ₁₂ ² H ₉ HF ₁₇ NO ₃ S	580.3059	579 > 142	579 > 80

Perfluorooctanesulfonamidoacetic Acids (FOSAA)

Compound	Molecular Formula	Molecular Weight	ESI- SRM Transition 1	ESI- SRM Transition 2
FOSAA	C ₁₀ H ₄ F ₁₇ NO ₄ S	557.1809	556 > 498	556 > 419
N-MeFOSAA	C ₁₁ H ₆ F ₁₇ NO ₄ S	571.2074	570 > 419	570 > 483
N-MeFOSAA [M+3]	C ₁₁ ² H ₃ H ₃ F ₁₇ NO ₄ S	574.2259	573 > 419	573 > 515
N-EtFOSAA	C ₁₂ H ₈ F ₁₇ NO ₄ S	585.2340	584 > 419	584 > 526
N-EtFOSAA [M+5]	C ₁₂ ² H ₅ H ₃ F ₁₇ NO ₄ S	590.2648	589 > 419	589 > 531

Summary of PFAS Analyte Information

Fluorotelomer Alcohols (X:2FTOH)

Compound	Molecular Formula	Molecular Weight	ESI- SRM Transition 1	ESI- SRM Transition 2
4:2 FTOH	C ₆ H ₅ F ₉ O	264.0889	263 > 203	263 > 245
4:2 FTOH [M+4]	C ₆ ² H ₄ HF ₉ O	268.1135	266 > 204	266 > 225
5:2 sFTOH	C ₇ H ₅ F ₁₁ O	314.0964	293 > 119	293 > 236
6:2 FTOH	C ₈ H ₅ F ₁₃ O	364.1039	363 > 303	363 > 255
6:2 FTOH [M+2]	¹³ C ₂ ¹² C ₆ H ₅ F ₁₃ O	366.0892	365 > 305	365 > 256
6:2 FTOH [M+4]	¹³ C ₂ ¹² C ₆ ² H ₂ H ₃ F ₁₃ O	368.1015	367 > 306	367 > 256
7:2 sFTOH	C ₉ H ₅ F ₁₅ O	414.1114	393 > 219	393 > 169
8:2 FTOH	C ₁₀ H ₅ F ₁₇ O	464.1189	463 > 403	463 > 355
8:2 FTOH [M+2]	¹³ C ₂ ¹² C ₈ H ₅ F ₁₇ O	466.1042	465 > 405	465 > 356
8:2 FTOH [M+4]	¹³ C ₂ ¹² C ₈ ² H ₂ H ₃ F ₁₇ O	468.1165	467 > 406	467 > 356
10:2 FTOH	C ₁₂ H ₅ F ₂₁ O	564.1339	563 > 503	563 > 455
10:2 FTOH [M+4]	¹³ C ₂ ¹² C ₁₀ ² H ₂ H ₃ F ₂₁ O	568.1315	567 > 506	567 > 456

Fluorotelomer Carboxylic Acids (FTCA)

Compound	Molecular Formula	Molecular Weight	ESI- SRM Transition 1	ESI- SRM Transition 2
3:3 FTCA	C ₆ H ₅ F ₇ O ₂	242.0915	241 > 177	241 > 117
5:3 FTCA	C ₈ H ₅ F ₁₁ O ₂	342.1065	341 > 237	341 > 217
7:3 FTCA	C ₁₀ H ₅ F ₁₅ O ₂	442.1215	441 > 337	441 > 317
6:2 FTCA	C ₈ H ₃ F ₁₃ O ₂	378.0874	377 > 293	377 > 63
6:2 FTCA [M+2]	¹³ C ₂ ¹² C ₆ H ₃ F ₁₃ O ₂	380.0727	379 > 294	379 > 64
8:2 FTCA	C ₁₀ H ₃ F ₁₇ O ₂	478.1024	477 > 393	477 > 63
8:2 FTCA [M+2]	¹³ C ₂ ¹² C ₈ H ₃ F ₁₇ O ₂	480.0877	479 > 394	479 > 64
10:2 FTCA	C ₁₂ H ₃ F ₂₁ O ₂	578.1174	577 > 493	577 > 63
10:2 FTCA [M+2]	¹³ C ₂ ¹² C ₁₀ H ₃ F ₂₁ O ₂	580.1027	579 > 494	579 > 64

Fluorotelomer Unsaturated Carboxylic Acids (FTUCA)

Compound	Molecular Formula	Molecular Weight	ESI- SRM Transition 1	ESI- SRM Transition 2
6:2 FTUCA	C ₈ H ₂ F ₁₂ O ₂	358.0811	357 > 293	357 > 243
6:2 FTUCA [M+2]	¹³ C ₂ ¹² C ₆ H ₂ F ₁₂ O ₂	360.0664	359 > 294	359 > 244
8:2 FTUCA	C ₁₀ H ₂ F ₁₆ O ₂	458.0961	457 > 393	457 > 343
8:2 FTUCA [M+2]	¹³ C ₂ ¹² C ₈ H ₂ F ₁₆ O ₂	460.0814	459 > 394	459 > 344
10:2 FTUCA	C ₁₂ H ₂ F ₂₀ O ₂	558.1111	557 > 493	557 > 119
10:2 FTUCA [M+2]	¹³ C ₂ ¹² C ₁₀ H ₂ F ₂₀ O ₂	560.0964	559 > 494	559 > 119

Sodium Perfluoroalkyl Phosphinates (X:XPFPi)

Compound	Molecular Formula	Molecular Weight	ESI- SRM Transition 1	ESI- SRM Transition 2
6:6PFPi	C ₁₂ F ₂₆ PO ₂ Na	724.0492	701 > 401	701 > 63
6:8PFPi	C ₁₄ F ₃₀ PO ₂ Na	824.0642	801 > 501	801 > 401
8:8PFPi	C ₁₆ F ₃₄ PO ₂ Na	924.0792	901 > 501	901 > 63

Summary of PFAS Analyte Information

Perfluoroalkylphosphonic Acids (PFAPA)

Compound	Molecular Formula	Molecular Weight	ESI- SRM Transition 1	ESI- SRM Transition 2
PFHxPA	C ₆ H ₂ F ₁₃ PO ₃	400.0312	399 > 79	-
Cl-PFHxPA	C ₆ H ₂ ClF ₁₂ PO ₃	416.4858	415 > 79	-
PFOPA	C ₈ H ₂ F ₁₇ PO ₃	500.0462	499 > 79	-
Cl-PFOPA	C ₈ H ₂ ClF ₁₆ PO ₃	516.5008	515 > 79	-
PFDPA	C ₁₀ H ₂ F ₂₁ PO ₃	600.0612	599 > 79	-

Polyfluoroalkyl Phosphate Mono-Esters (PAP)

Compound	Molecular Formula	Molecular Weight	ESI- SRM Transition 1	ESI- SRM Transition 2
6:2PAP	C ₈ H ₄ F ₁₃ PO ₄ Na ₂	488.0475	443 > 97	443 > 79
6:2PAP [M+2]	¹³ C ₂ ¹² C ₆ H ₄ F ₁₃ PO ₄ Na ₂	490.0328	445 > 97	445 > 79
8:2PAP	C ₁₀ H ₄ F ₁₇ PO ₄ Na ₂	588.0625	543 > 97	543 > 79
8:2PAP [M+2]	¹³ C ₂ ¹² C ₈ H ₄ F ₁₇ PO ₄ Na ₂	590.0478	545 > 97	545 > 79

Polyfluoroalkyl Phosphate Di-Esters (diPAP)

Compound	Molecular Formula	Molecular Weight	ESI- SRM Transition 1	ESI- SRM Transition 2
6:2diPAP	C ₁₆ H ₈ F ₂₆ PO ₄ Na	812.1543	789 > 97	789 > 443
6:2diPAP [M+4]	¹³ C ₄ ¹² C ₁₂ H ₈ F ₂₆ PO ₄ Na	816.1249	793 > 97	793 > 445
6:2/8:2diPAP	C ₁₈ H ₈ F ₃₀ PO ₄ Na	912.1693	889 > 97	889 > 443
8:2diPAP	C ₂₀ H ₈ F ₃₄ PO ₄ Na	1012.1843	989 > 97	989 > 543
8:2diPAP [M+4]	¹³ C ₄ ¹² C ₁₆ H ₈ F ₃₄ PO ₄ Na	1016.1549	993 > 97	993 > 545

Polyfluoroalkyl Phosphate Esters (SAmPAP)

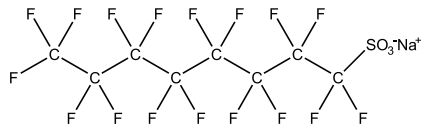
Compound	Molecular Formula	Molecular Weight	ESI- SRM Transition 1	ESI- SRM Transition 2
SAmPAP	C ₁₂ H ₉ F ₁₇ NO ₆ PSNa ₂	695.1941	650 > 526	650 > 97
diSAmPAP	C ₂₄ H ₁₈ F ₃₄ N ₂ O ₈ PS ₂ Na	1226.4475	1203 > 526	1203 > 169

Cationic/Zwitterionic PFAS

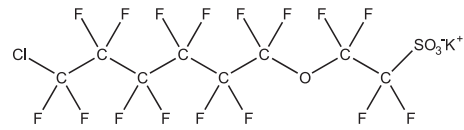
Compound	Molecular Formula	Molecular Weight	ESI+ SRM Transition 1	ESI+ SRM Transition 2
N-AP-FHxSA	C ₁₁ H ₁₃ F ₁₃ N ₂ O ₂ S	484.2773	485 > 85	485 > 58
N-TAmP-FHxSA	C ₁₂ H ₁₅ F ₁₃ N ₂ O ₂ S	498.3039	499 > 60	499 > 73
N-CMAmP-6:2FOSA	C ₁₅ H ₁₉ F ₁₃ N ₂ O ₄ S	570.3666	571 > 104	571 > 58
5:3FTB	C ₁₂ H ₁₄ F ₁₁ NO ₂	413.2275	414 > 58	414 > 104
5:1:2FTB	C ₁₂ H ₁₃ F ₁₂ NO ₂	431.2179	432 > 58	432 > 104

Structures of Commonly Analyzed PFAS

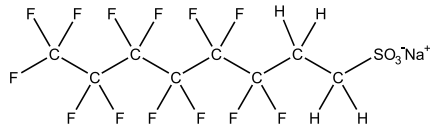
PFSA (example = PFOS)



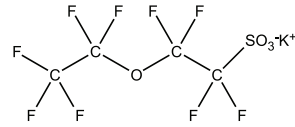
Cl-PFESA (example = 9Cl-PF3ONS)



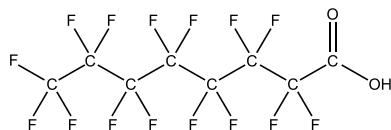
X:2FTS (example = 6:2FTS)



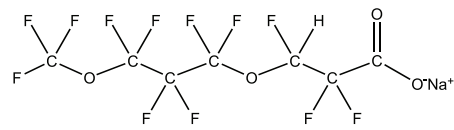
PFESA (example = PFEESA)



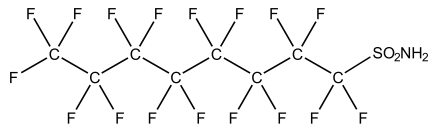
PFCA (example = PFOA)



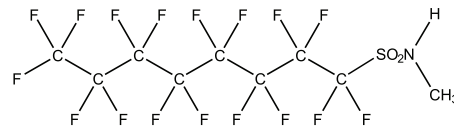
PFECA (example = NaDONA)



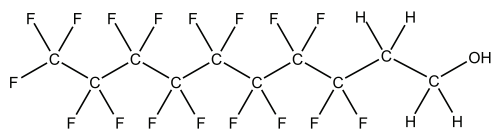
FASA (example = FOSA)



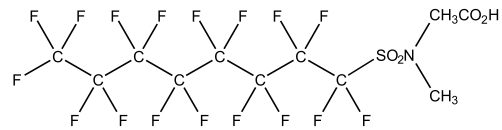
N-alkylFASA (example = N-MeFOSA)



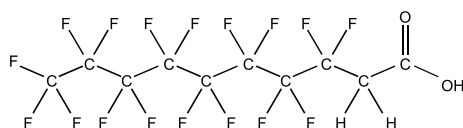
FTOH (example = FOET / 8:2 FTOH)



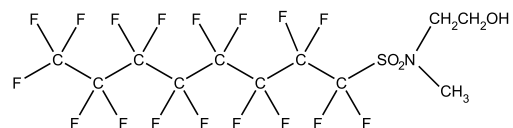
N-alkylFASAA (example = N-MeFOSAA)



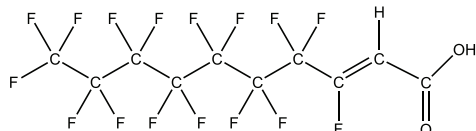
FTCA (example = FOEA / 8:2 FTCA)



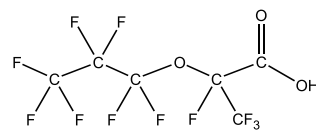
N-alkylFOSE (example = N-MeFOSE)



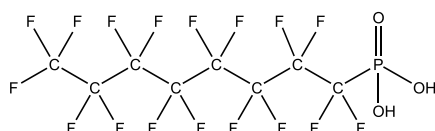
FTUCA (example = FOUEA / 8:2 FTUCA)



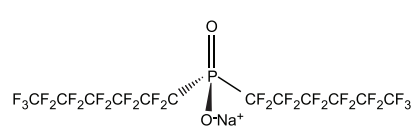
Dimer Acid (example = HFPO-DA)



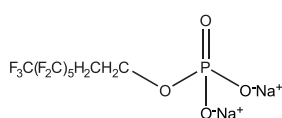
PFAPA (example = PFOPA)



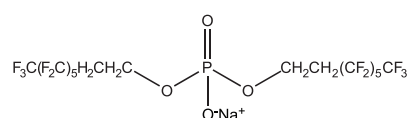
X:XPFPi (example = 6:6PFPi)



PAP (example = 6:2PAP)



diPAP (example = 6:2diPAP)



Typical HPLC/UPLC Flow Rates

Column ID (mm)	Particle Size 5 μm	Particle Size 3 μm	Particle Size 2 μm	Particle Size sub 2 μm^*
1.0	0.05 mL/min	0.07 mL/min	0.10 mL/min	0.15 mL/min
2.1	0.2	0.3	0.5	0.4 - 0.6
3.2	0.5	0.7	1.0	0.8
4.6	1.0	1.5	2.0	1.0

*Flow rate may be limited by column back pressure.

Common Buffers

Buffer Type	pKa	Buffer pH Range	Examples
Acetate	4.8	3.8 - 5.8	Ammonium Acetate Acetic Acid Sodium Acetate
Ammonia	9.2	8.2 - 10.2	Ammonium Hydroxide Ammonium Phosphate (mono- and di-basic) Ammonium Carbonate
Borate	9.2	8.2 - 10.2	Sodium Borate Boric Acid
Carbonate	10.2	9.2 - 11.2	Ammonium Carbonate Ammonium Bicarbonate
Citrate	3.1 4.7 5.4	2.1 - 4.1 3.7 - 5.7 4.4 - 6.4	Trisodium Citrate Diammonium Citrate Triammonium Citrate Citric Acid
Formate	3.8	2.8 - 4.8	Ammonium Formate Formic Acid
Phosphate	2.1 7.2 12.3	1.1 - 3.1 6.2 - 8.2 11.3 - 13.3	Potassium Phosphate Monobasic Potassium Phosphate Dibasic Potassium Phosphate Tribasic Phosphoric acid

Conversion Factors for Units of Pressure Measurement

	<i>PSI</i>	<i>bar</i>	<i>torr</i>	<i>kPa</i>	<i>atm</i>	<i>inches Hg</i>	<i>kg/cm²</i>
PSI=	1	0.06895	51.713	6.8948	0.068	2.0359	0.0703
bar=	14.5038	1	751.88	100	0.9869	29.5300	1.0197
torr=	0.0193	0.00133	1	0.1330	0.00132	0.0394	0.00136
kPa=	0.1450	0.0100	7.52	1	0.00987	0.2962	0.0102
atm=	14.696	1.0133	760	101.32	1	29.921	1.0332
inches Hg=	0.49612	0.03376	25.400	3.376	0.0334	1	0.0345
kg/cm²=	14.223	0.9806	735.5	98.06	0.967	28.958	1



共に、成長を

ハロゲン化芳香族化合物の取り扱い参考資料にご好評をいただき、このPFASのクイックリファレンスガイドをご案内させていただき運びとなりました。

PFASの安定性、分析の課題や推奨される保管についての資料完全版はWELLINGTON LABORATORIESカナダ本社のウェブサイトからご覧いただけます。

<https://well-labs.com>



用途確認書

令和 年 月 日

株式会社ウエリントンラボラトリーズジャパン
代表取締役 加坂 達司 殿

住所
会社名
所属
使用者
電話番号

(個人印可)

今般、貴社から購入予定の第一種特定化学物質は、「化学物質の審査及び製造等の規制に関する法律」(昭和48年法律第117号)第25条ただし書きに規定する試験研究用として使用します。

1, 第一種特定化学物質の商品としての組成、数量及び荷姿

- ① PFOS 又はその塩、PFOA 又はその塩：MPFAC-MXA
(PFOS 又はその塩、PFOA 又はその塩 2 種類 メタノール溶液 1.2ml) × 1
ガラスアンプル 組成表は別紙参照

2, 試験研究の目的

目的：

環境水に含まれる PFOS 又はその塩、PFOA 又はその塩を定量分析することを目的とする。今回購入する PFOS 又はその塩、PFOA 又はその塩は、液体クロマトグラフタンデム質量分析計 (LCMSMS) にて正確に定量分析を行うための標準物質として使用する。

内容：

今回購入する、PFOS 又はその塩、PFOA 又はその塩 (MPFAC-MXA) は、希釈し 10ng/mL の内部標準溶液として 1 試料あたり 100 μ L を添加して使用する。



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