

PROEFRONDE PFAS IN WATER

Werkgroep Water – 11 oktober 2021

Doelstelling: evaluatie WAC/IV/A/025 (ontwerpversie november 2020)

- indeling van de 36 componenten in kwantitatieve en indicatieve parameters
- vastleggen van haalbare detectielimieten
- bepaling van de (interlabo)reproduceerbaarheid
- gelijktijdig met proefronde PFAS in vaste stoffen

Deelnemende laboratoria

- Servaco
- Waterlink
- AL-West
- ECCA
- SGS Antwerpen
- Eurofins Omegam
- VITO

Aangeboden stalen

- Effluent 1 (reëel) <LOQ – 200 ng/l
- Effluent 2 (reëel) <LOQ – 10000 ng/l
- DW (geaddeerd) 5 – 100 ng/l
- GW (geaddeerd) 5 – 100 ng/l

Van elk type staal werden 2 flessen bezorgd, om duplo analyse uit te voeren

Analyse volgens WAC/IV/A/025 (ontwerp november 2020)

- 36 PFAS;
- PFOS en PFOA = de som van de lineaire en vertakte vormen

	Extractie	Spoelstap acetaatbuffer
Labo 1	directe inj; solub MeOH	-
Labo 2	SPE Oasis WAX 6 ml 150 mg	ja
Labo 3	SPE Oasis WAX 6cc 150mg 30 µm	nee
Labo 4	SampliQ Agilent WAX Polymer 6ml 150mg	?
Labo 5	directe inj; solub ACN/MeOH (3/1)	-
Labo 6	SPE Oasis WAX 6 ml 150 mg	ja
Labo 7	SPE Waters WAX kolom 6cc 150mg	ja

	Kolom	Isolatorkolom
Labo 1	Acquity premier BEH Shield RP18; 2.1 x 100 mm; 1.7 µm; VanGuard FIT	?
Labo 2	Atlantis T3; 4.6 x 100 mm; 3 µm	ja
Labo 3	Agilent Zorbax Eclipse Plus C18; 2.1 x 100mm; 1.8µm	ja
Labo 4	Zorbax Eclipse C18 Agilent	?
Labo 5	Acquity UPLC Premier BEH shield RP18; 2.1 x 100 mm; 1.7 µm	ja
Labo 6	Acquity UPLC BEH Shield RP18; 2.1 x 100 mm; 1.7µm	ja
Labo 7	Waters 100 mm C18 BEH	?

Opmerking: Labo 5 gebruikt transitie PFUnDA q 563>269

Alle laboratoria voldoen aan de minimumlijst in WAC, behalve labo 5.

	WAC/IV/A/025 (bv.)	1	2	3	4	5	6	7
PFBA	13C-PFBA	13C-PFBA	13C-PFBA	13C-PFBA	13C-PFBA	13C-PFBA	13C-PFBA	13C-PFBA
PFPeA	13C-PFPeA	13C-PFPeA	13C-PFPeA	13C-PFPeA	13C-PFPeA	13C-PFPeA	13C-PFPeA	13C-PFPeA
PFHxA	13C-PFHxA	13C-PFHxA	13C-PFHxA	13C-PFHxA	13C-PFHxA	13C-PFHxA	13C-PFHxA	13C-PFHxA
PFHpA	13C-PFHxA	13C-PFHxA	13C-PFHxA	13C-PFHxA	13C-PFHxA	13C-PFHxA	13C-PFHxA	13C-PFHxA
PFOA	13C-PFOA	13C-PFOA	13C-PFOA	13C-PFOA	13C-PFOA	13C-PFOA	13C-PFOA	13C-PFOA
PFNA	13C-PFNA	13C-PFNA	13C-PFNA	13C-PFNA	13C-PFNA	13C-PFNA	13C-PFNA	13C-PFNA
PFDA	13C-PFDA	13C-PFDA	13C-PFDA	13C-PFDA	13C-PFDA	13C-PFDA	13C-PFDA	13C-PFDA
PFUdA	13C-PFUdA	13C-PFUdA	13C-PFUdA	13C-PFUdA	13C-PFUdA	13C-PFUdA	13C-PFUdA	13C-PFUdA
PFDoA	13C-PFDoA	13C-PFDoA	13C-PFDoA	13C-PFDoA	13C-PFDoA	13C-PFDoA	13C-PFDoA	13C-PFDoA
PFTeDA	13C-PFTeDA	13C-PFTeDA	13C-PFTeDA	13C-PFTeDA	13C-PFTeDA	EXT	13C-PFTeDA	13C-PFTeDA
PFHxDA	13C-PFHxDA	13C-PFHxDA	13C-PFHxDA	13C-PFHxDA	13C-PFHxDA	EXT	13C-PFHxDA	13C-PFHxDA
PFBS	13C-PFHxS	180-PFHxS	13C-PFBS	13C-PFHxS	13C-PFHxS	13C-PFBS	13C-PFHxS	13C-PFBS
PFPeS	180-PFHxS	180-PFHxS	13C-PFHxS	13C-PFHxS	13C-PFHxS	EXT	13C-PFHxS	180-PFHxS
PFHxS	180-PFHxS	180-PFHxS	13C-PFHxS	13C-PFHxS	13C-PFHxS	13C-PFHxS	13C-PFHxS	180-PFHxS
PFHpS	13C-PFHxS	180-PFHxS	13C-PFOS	13C-PFHxS	13C-PFHxS	EXT	13C-PFHxS	180-PFHxS
PFOS	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS
PFNS	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS	EXT	13C-PFOS	13C-PFOS
4:2 FTS	13C-6:2 FTS	13C-4:2 FTS	13C-4:2 FTS	13C-4:2 FTS	13C-6:2 FTS	EXT	13C-6:2 FTS	13C-4:2 FTS
6:2 FTS	13C-6:2 FTS	13C-6:2 FTS	13C-6:2 FTS	13C-6:2 FTS	13C-6:2 FTS	EXT	13C-6:2 FTS	13C-6:2 FTS
8:2 FTS	13C-6:2 FTS	13C-8:2 FTS	13C-8:2 FTS	13C-8:2 FTS	13C-6:2 FTS	EXT	13C-6:2 FTS	13C-8:2 FTS
FOSA	13C-FOSA	13C-FOSA	13C-FOSA	D-FOSA	13C-FOSA	EXT	13C-FOSA	13C-FOSA
MeFOSAA	D-MeFOSAA	D-MeFOSAA	D-MeFOSAA	D-MeFOSAA	D-MeFOSAA	D-MeFOSAA	13C-Me-FOSAA	D-MeFOSAA
EtFOSAA	D-MeFOSAA	D-MeFOSAA	D-MeFOSAA	D-MeFOSAA	D-MeFOSAA	EXT	13C-Me-FOSAA	D-MeFOSAA
8:2 diPAP	13C-8:2 diPAP	13C-8:2 diPAP	13C-8:2 diPAP	13C-8:2 diPAP	13C-8:2 diPAP	13C-8:2 diPAP	13C-8:2 diPAP	13C-8:2 diPAP
HFPO-DA	13C-HFPO-DA	13C-HFPO-DA	13C-HFPO-DA	13C-HFPO-DA	13C-HFPO-DA	EXT	13C-HFPO-DA	13C-HFPO-DA
ADONA	13C-HFPO-DA	13C-HFPO-DA	13C-PFHxA	13C-HFPO-DA	13C-HFPO-DA	IS	13C-PFOA	13C-HFPO-DA
PFECHS	13C-PFOA	13C-PFOA	13C-PFOS	13C-PFOA	13C-8:2 diPAP	EXT	13C-PFOA	13C-PFOS



Indicatieve parameters

	WAC/IV/A/025 (bv.)	1	2	3	4	5	6	7
PFODA	13C-PFHxDA	13C-PFHxDA	13C-PFHxDA	13C-PFHxDA	13C-PFHxDA	EXT	13C-PFHxDA	13C-PFHxDA
PFDS	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS	EXT	13C-PFOS	13C-PFOS
PFTTrDA	13C-PFDoA	13C-PFDoA	13C-PFDoA	13C-PFDoA	13C-PFDoA	EXT	13C-PFDoA	13C-PFDoA
10:2 FTS	13C-6:2 FTS	13C-8:2 FTS	13C-10:2 FTS	13C-6:2 FTS	13C-6:2 FTS	EXT	13C-6:2 FTS	13C-8:2 FTS
PFDoS	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS	EXT	13C-PFOS	13C-PFOS
MeFOSA	D-MeFOSA	D-MeFOSA	D-MeFOSA	D-MeFOSA	D-MeFOSA	EXT	D-MeFOSA	D-MeFOSA
EtFOSA	D-MeFOSA	D-MeFOSA	D-EtFOSA	D-EtFOSA	D-MeFOSA	EXT	D-MeFOSA	D-EtFOSA
6:2 diPAP	13C-8:2 diPAP	13C-6:2 diPAP	13C-8:2 diPAP	13C-6:2 diPAP	13C-8:2 diPAP	13C-8:2 diPAP	13C-6:2 diPAP	13C-8:2 diPAP
6:2/8:2 diPAP	13C-8:2 diPAP	13C-6:2 diPAP	13C-8:2 diPAP	13C-6:2 diPAP	13C-8:2 diPAP	13C-8:2 diPAP	13C-6:2 diPAP	13C-8:2 diPAP

RESULTATEN EFFLUENT 1

PFAS ng/l	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		ALLE RESULTATEN		EX UITSCIETERS	
	1	2	1	2	1	2	1	2	1*	2*	1	2	1	2	Gemidd	RSD	Gemidd	RSD
	13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		ng/l	%	ng/l	%
PFBA	NG	NG	1058	1088	1007	987	1131	1046	1137	1110	908	879	1262	1283	1075	11.4		
Int Std	13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA					
Recov IS %	110	112	240	236	103	99	113	117	99	102	57	57	53	53				
PFPeA	1500	1600	535	568	724	707	619	641	772	752	658	621	901	901	821	39.9	700	16.8
Int Std	13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA					
Recov IS %	114	109	384	346	94	96	110	113	99	102	81	89	45	45				
PFHxA	530	600	526	591	595	590	596	601	680	658	607	598	694	693	611	8.6		
Int Std	13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA					
Recov IS %	120	118	347	307	104	106	122	121	102	105	82	87	64	64				
PFHpA	380	520	342	352	444	431	417	411	490	490	387	375	553	558	439	16.4		
Int Std	13C-PFHxA		13C-PFHpA		13C-PFHpA		13C-PFHxA		13C-PFHpA		13C-PFHxA		13C-PFHxA					
Recov IS %	120	118	356	327	104	108	122	121	104	103	82	87	64	64				
PFOA	580	620	371	467	474	470	438	434	527	520	429	400	540	536	486	14.5		
Int Std	13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA					
Recov IS %	120	113	490	359	106	105	139	138	102	105	103	112	67	67				
PFNA	390	420	401	373	436	427	385	349	460	494	436	401	521	509	429	12.1		
Int Std	13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA					
Recov IS %	112	123	412	372	108	109	120	126	103	103	92	102	65	65				
PFDA	180	188	199	206	224	220	215	212	253	270	251	231	244	221	222	11.5		
Int Std	13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA					
Recov IS %	106	116	323	286	103	100	142	141	104	105	112	120	84	85				

RESULTATEN EFFLUENT 1

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Gemidd	RSD%	Gemidd	RSD%
PFUdA	88	100	90	84	107	110	127	130	130	132	121	117	159	148	117	19.1		
Int Std	13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA					
Recov IS %	100	98	404	376	102	94	124	120	108	107	103	108	54	54				
PFDaA	11	13	37	36	36	37	39	41	38	37	39	36	89	82	41	51.6	37.8	4.6
Int Std	13C-PFDaA		13C-PFDaA		13C-PFDaA		13C-PFDaA		13C-PFDaA		13C-PFDaA		13C-PFDaA					
Recov IS %	81	87	312	280	99	86	105	106	100	102	86	115	24	27				
PFTeDA	< 10	< 10	5.0	3.8	<20	<20	<5	<5	<100	<100	<5	<5	23	22	<	<		
Int Std	13C-PFTeDA		13C-PFTeDA		13C-PFTeDA		13C-PFTeDA		EXT		13C-PFTeDA		13C-PFTeDA					
Recov IS %	35	43	272	261	79	76	111	111			55	64	5	7				
PFHxDA	< 10	< 10	3.3	2.7	<20	<20	<5	<5	<100	<100	<5	<5	< 20	< 20	<	<		
Int Std	13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		EXT		13C-PFHxDA		13C-PFHxDA					
Recov IS %	10	12	232	215	54	70	127	131			66	44	48	50				
PFBS	26	18	13	14	<20	<20	15	13	12	12	14	14	< 20	< 20	15	28.1		
Int Std	18O-PFHxS		13C-PFBS		13C-PFHxS		13C-PFHxS		13C-PFBS		13C-PFHxS		13C-PFBS					
Recov IS %	105	109	94	83	85	85	98	102	103	106	92	98	54	50				
PFPeS	< 10	< 10	< 1	< 1	<20	<20	<5	<5	<10	<10	<5	<5	< 20	< 20	<	<		
Int Std	18O-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		EXT		13C-PFHxS		18O-PFHxS					
Recov IS %	105	109	119	112	85	85	98	102			92	98	62	61				
PFHxS	< 4	< 4	< 1	< 1	<20	<20	<5	<5	<10	<10	<5	<5	< 20	< 20	<	<		
Int Std	18O-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		18O-PFHxS					
Recov IS %	105	109	119	112	85	85	98	102	103	105	92	98	62	61				

RESULTATEN EFFLUENT 1

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Gemidd	RSD%	Gemidd	RSD%
PFHpS	< 10	< 10	< 1	< 1	<20	<20	<5	<5	<10	<10	<5	<5	< 20	< 20	<	<		
Int Std	180-PFHxS		13C-PFOS		13C-PFHxS		13C-PFHxS		EXT		13C-PFHxS		180-PFHxS					
Recov IS %	105	109	100	93	85	85	98	102			92	98	62	61				
PFOS	<4	<4	< 5	< 5	<20	<20	<5	<5	<10	<10	<5	<5	< 20	< 20	<	<		
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS					
Recov IS %	105	104	100	93	83	79	104	102	99	99	95	106	69	67				
PFNS	< 10	< 10	< 1	< 1	<20	<20	<5	<5	<20	<20	<5	<5	< 20	< 20	<	<		
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		EXT		13C-PFOS		13C-PFOS					
Recov IS %	105	104	100	93	83	79	104	102			95	106	69	67				
4:2 FTS	< 10	< 10	< 1	< 1	<20	<20	<5	<5	<20	<20	<5	<5	< 20	< 20	<	<		
Int Std	13C-4:2 FTS		13C-4:2 FTS		13C-4:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-4:2 FTS					
Recov IS %	308	233	1144	1165	413	456	237	255			483	510	487	461				
6:2 FTS	10	11	16	16	<20	<20	13	12	182	206	24	23	24	22	47	149	17.0	32.8
Int Std	13C-6:2 FTS		13C-6:2 FTS		13C-6:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-6:2 FTS					
Recov IS %	104	85	1849	1681	557	556	237	255			483	510	510	509				
8:2 FTS	< 10	< 10	< 1	< 1	<20	<20	<5	<5	<10	<10	<5	<5	< 20	< 20	<	<		
Int Std	13C-8:2 FTS		13C-8:2 FTS		13C-8:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-8:2 FTS					
Recov IS %	165	242	2075	1985	362	358	237	255			483	510	271	264				
FOSA	< 10	< 10	< 1	< 1	<20	<20	<5	<5	<20	<20	<5	<5	< 20	< 20	<	<		
Int Std	13C-FOSA		13C-FOSA		D-FOSA		13C-FOSA		EXT		13C-FOSA		13C-FOSA					
Recov IS %	70	80	70	70	61	53	103	103			80	83	26	28				

RESULTATEN EFFLUENT 1

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Gemidd	RSD%	Gemidd	RSD%
MeFOSAA	< 10	< 10	< 1	< 1	<20	<20	<5	<5	<20	<20	<5	<5	< 20	< 20	<	<		
Int Std	D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		13C-Me-FOSAA		D-MeFOSAA					
Recov IS %	145	105	2040	1847	124	120	103	109	102	105	183	202	88	97				
EtFOSAA	< 10	< 10	< 1	< 1	<20	<20	<5	<5	<20	<20	<5	<5	< 20	< 20	<	<		
Int Std	D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		EXT		13C-Me-FOSAA		D-MeFOSAA					
Recov IS %	145	105	2040	1847	124	120	103	109			183	202	88	97				
8:2 diPAP	< 10	< 10	< 1	< 1	<20	<20	<5	<5	<200	<200	<5	<5	< 20	< 20	<	<		
Int Std	13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP					
Recov IS %	19	11	1237	1168	246	265	153	155	104	121	156	83	269	297				
HFPO-DA (GenX)	< 10	< 10	4	4	<20	<20	<5	<5	<10	<10	<5	<5	23	< 20	<	<		
Int Std	13C-Gen-X		13C-Gen-X		13C-Gen-X		13C-Gen-X		EXT		13C-Gen-X		13C-Gen-X					
Recov IS %	37	99	66	64	95	98	120	124			72	74	52	52				
ADONA	< 10	< 10	< 1	< 1	<20	<20	<5	<5	<10	<10	<5	<5	< 20	< 20	<	<		
Int Std	13C-Gen-X		13C-PFHpA		13C-Gen-X		13C-Gen-X		IS		13C-PFOA		13C-Gen-X					
Recov IS %	37	99	66	64	95	98	120	124			103	112	52	52				
PFECHS	< 10	< 10	< 1	< 1	<20	<20	<5	<5	<10	<10	<5	<5	< 20	< 20	<	<		
Int Std	13C-PFOA		13C-PFOS		13C-PFOA		13C-8:2 diPAP		EXT		13C-PFOA		13C-PFOS					
Recov IS %	120	113	100	93	106	105	153	155			103	112	69	67				

RESULTATEN EFFLUENT 1

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Gemidd	RSD%	Gemidd	RSD%
PFODA	< 10	< 10	< 2	< 2	<80	<80	<5	<5	<100	<100	<5	<5	< 20	< 20	<	<		
Int Std	13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		EXT		13C-PFHxDA		13C-PFHxDA					
Recov IS %	10	12	232	215	54	70	127	131			66	44	48	50				
PFDS	< 10	< 10	< 1	< 1	<20	<20	<5	<5	<50	<50	<5	<5	< 20	< 20	<	<		
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		EXT		13C-PFOS		13C-PFOS					
Recov IS %	105	104	100	93	83	79	104	102			95	106	69	67				
PFTrDA	< 10	< 10	11.4	10.4	<20	<20	13.5	13.3	<100	<100	7.7	7.9	21	21	13	39.6	10.7	23.6
Int Std	13C-PFDoA		13C-PFDoA		13C-PFDoA		13C-PFDoA		EXT		13C-PFDoA		13C-PFDoA					
Recov IS %	81	87	312	280	99	86	105	106			86	115	24	27				
10:2 FTS	< 10	< 10	< 4	< 4	<20	<20	<5	<5	<200	<200	<5	<5	< 20	< 20	<	<		
Int Std	13C-8:2 FTS		13C-10:2 FTS		13C-6:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-8:2 FTS					
Recov IS %	165	242	1988	1651	557	556	237	255			483	510	271	264				
PFDoS	< 10	< 10	< 1	< 1	<20	<20	<5	<5	<150	<150	<5	<5	< 20	< 20	<	<		
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		EXT		13C-PFOS		13C-PFOS					
Recov IS %	105	104	100	93	83	79	104	102			95	106	69	67				
MeFOSA	< 10	< 10	< 2	< 2	<20	<20	<5	<5	<50	<50	<5	<5	< 20	< 20	<	<		
Int Std	D-MeFOSA		D-MeFOSA		D-MeFOSA		D-MeFOSA		EXT		D-MeFOSA		D-MeFOSA					
Recov IS %	101	92	29	35	41	34	52	56			29	12	0.1	0.4				
EtFOSA	< 10	< 10	< 4	< 4	<20	<20	<5	<5	<50	<50	<5	<5	< 20	< 20	<	<		
Int Std	D-MeFOSA		D-EtFOSA		D-EtFOSA		D-MeFOSA		EXT		D-MeFOSA		D-EtFOSA					
Recov IS %	101	92	48	40	38	32	52	56			29	12	0.3	0.4				
6:2 diPAP	< 10	< 10	< 10	< 10	<20	<20	23.1	23.7	<100	<100	<5	<5	< 20	< 20	<	<		
Int Std	13C-6:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP					
Recov IS %	43	53	1237	1168	258	264	153	155	104	121	104	142	269	297				
6:2/8:2 diPAP	< 10	< 10	< 10	< 10	<80	<80	<5	<5	<100	<100	<5	<5	< 20	< 20	<	<		
Int Std	13C-6:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP					
Recov IS %	43	53	1237	1168	258	264	153	155	104	121	104	142	269	297				

RESULTATEN EFFLUENT 1 – TERUGVINDING I.S.

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Min Rec.	Max Rec.	Gem Rec.
	1	2	1	2	1	2	1	2	1*	2*	1	2	1	2	%	%	%
13C-PFBA	110	112	240	236	103	99	113	117	99	102	57	57	53	53	53	240	111
13C-PFPeA	114	109	384	346	94	96	110	113	99	102	81	89	45	45	45	384	130
13C-PFHxA	120	118	347	307	104	106	122	121	102	105	82	87	64	64	64	347	132
13C-PFOA	120	113	490	359	106	105	139	138	102	105	103	112	67	67	67	490	152
13C-PFNA	112	123	412	372	108	109	120	126	103	103	92	102	65	65	65	412	144
13C-PFDA	106	116	323	286	103	100	142	141	104	105	112	120	84	85	84	323	138
13C-PFUDa	100	98	404	376	102	94	124	120	108	107	103	108	54	54	54	404	140
13C-PFDoA	81	87	312	280	99	86	105	106	100	102	86	115	24	27	24	312	115
13C-PFTeDA	35	43	272	261	79	76	111	111	100	103	55	64	5	7	5	272	94
13C-PFHxDA	10	12	232	215	54	70	127	131			66	44	48	50	10	232	88
13C-PFHxS			119	112	85	85	98	102	103	105	92	98			85	119	100
180-PFHxS	105	109											62	61	61	109	84
13C-PFOS	105	104	100	93	83	79	104	102	99	99	95	106	69	67	67	106	93
13C-6:2FTS	104	85	1849	1681	557	556	237	255			483	510	510	509	85	1849	611
13C-PFOSA	70	80	70	70	61	53	103	103	91	105	80	83	26	28	26	105	73
D-MeFOSA	101	92	29	35	41	34	52	56			29	12	0.1	0.4	0	101	40
D-MeFOSAA	145	105	2040	1847	124	120	103	109	102	105	183	202	88	97	88	2040	384
13C-8:2 PAP																	
13C-8:2 diPAP	19	11	1237	1168	246	265	153	155	104	121	156	83	269	297	11	1237	306
13C-GEN-X	37	99	66	64	95	98	120	124			72	74	52	52	37	124	80
13C-8:2 FTS	165	242	2075	1985	362	358							271	264	165	2075	715
13C-4:2 FTS	308	233	1144	1165	413	456							487	461	233	1165	583
13C-6:2diPAP	43	53			258	264					104	142			43	264	144
13C-PFHpA			356	327	104	108			104	103			53	52	52	356	151
D-EtFOSA			48	40	38	32							0.3	0.4	0.3	48	26
D-EtFOSAA			1980	1752	158	163	156	146					80	92	80	1980	566
13C-10:2 FTS			1988	1651											1651	1988	1819
13C-PFBS			94	83					103	106			54	50	50	106	81

RESULTATEN EFFLUENT 2

EFFLUENT 2 PFAS ng/l															ALLE RESULTATEN		UITSCIETERS VERWIJDERD	
	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Gemidd	RSD	Gemidd	RSD
	1	2	1	2	1	2	1	2	1*	2*	1	2	1	2	ng/l	%	ng/l	%
PFBA	NG	NG	1347	1303	1477	1437	1407	1382	1706	1575	1218	1196	1825	1849	1477	14.9		
Int Std	13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA					
Recov IS %	103	104	171	174	40	41	117	114	101	103	25	27	28	27				
PFPeA	6100	6300	2202	2187	2932	2883	1520	1653	3084	2958	2533	2483	3374	3343	3111	45.8	2798	15.3
Int Std	13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA					
Recov IS %	107	108	122	110	71	78	121	118	100	100	9	9	21	20				
PFHxA	5000	5300	5110	5610	5543	5472	3761	3633	6103	5722	5290	5187	110409	115139	20520	190.6	5144	14.4
Int Std	13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA					
Recov IS %	108	105	123	117	85	93	112	109	98	101	10	11	35	35				
PFHpA	950	1100	919	995	1121	1087	947	925	1227	1192	1038	1097	1156	1165	1066	9.7		
Int Std	13C-PFHxA		13C-PFHpA		13C-PFHpA		13C-PFHxA		13C-PFHpA		13C-PFHxA		13C-PFHxA					
Recov IS %	108	105	149	122	102	104	112	109	100	100	10	11	35	35				
PFOA	360	400	266	256	289	277	305	299	381	281	236	259	379	372	311	17.7		
Int Std	13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA					
Recov IS %	102	107	146	143	88	95	127	124	99	102	91	92	58	59				
PFNA	< 4	< 4	1	1	<20.0	<20.0	<5	<5	<100	<100	0	0	< 20	< 20	<	<		
Int Std	13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA					
Recov IS %	102	103	264	262	93	97	108	105	99	101	103	103	54	54				
PFDA	< 10	< 10	1	1	<20.0	<20.0	<5	<5	<100	<100	0	0	< 20	< 20	<	<		
Int Std	13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA					
Recov IS %	105	104	224	177	89	85	112	109	98	101	88	99	58	56				

RESULTATEN EFFLUENT 2

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Gemidd	RSD%	Gemidd	RSD%
PFUdA	< 10	< 10	1	0	<20.0	<20.0	<5	<5	<100	<100	0	0	< 20	< 20	<	<		
Int Std	13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA					
Recov IS %	98	91	220	155	84	70	109	106	99	100	68	87	34	33				
PFDoA	< 10	< 10	1	0	<20.0	<20.0	<5	<5	<500	<500	0	0	< 20	< 20	<	<		
Int Std	13C-PFDoA		13C-PFDoA		13C-PFDoA		13C-PFDoA		13C-PFDoA		13C-PFDoA		13C-PFDoA					
Recov IS %	75	80	184	133	78	46	94	91	96	100	32	69	14	16				
PFTeDA	< 10	< 10	1	1	<20.0	-	<5	<5	<1000	<1000	0	0	< 20	< 20	<	<		
Int Std	13C-PFTeDA		13C-PFTeDA		13C-PFTeDA		13C-PFTeDA		EXT		13C-PFTeDA		13C-PFTeDA					
Recov IS %	37	44	129	94	43	8	112	109			5	22	1	2				
PFHxDA	< 10	< 10	< 2	< 2	-	-	<5	<5	<1000	<1000	0	0	< 20	< 20	<	<		
Int Std	13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		EXT		13C-PFHxDA		13C-PFHxDA					
Recov IS %	8	10	131	116	8	3	135	132			14	34	17	3				
PFBS	5700	5800	2521	2561	4815	4623	3290	3320	6664	6418	5378	5610	133212	124140	22432	200.9	4725	31.0
Int Std	180-PFHxS		13C-PFBS		13C-PFHxS		13C-PFHxS		13C-PFBS		13C-PFHxS		13C-PFBS					
Recov IS %	104	109	83	87	88	93	112	109	99	100	10	10	50	53				
PFPeS	2500	2600	2298	1919	3160	3081	2164	2322	3357	3280	2612	2728	1973	2068	2576	19.0		
Int Std	180-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		EXT		13C-PFHxS		180-PFHxS					
Recov IS %	104	109	88	116	88	93	112	109			10	10	55	54				
PFHxS	3500	3600	3711	3405	4780	4517	1740	1740	5221	4127	4072	4710	81022	93097	15660	193.9	4164	14.9
Int Std	180-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		180-PFHxS					
Recov IS %	104	109	88	116	88	93	112	109	97	100	10	10	55	54				

RESULTATEN EFFLUENT 2

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Gemidd	RSD%	Gemidd	RSD%
PFHpS	< 10	12	39	29	37	32	13	14	<100	<100	12	16	< 20	< 20	23	50.5		
Int Std	180-PFHxS		13C-PFOS		13C-PFHxS		13C-PFHxS		EXT		13C-PFHxS		180-PFHxS					
Recov IS %	104	109	56	63	88	93	112	109			10	10	55	54				
PFOS	55	170	105	72	81	78	106	100	<100	<100	75	137	50	32	88	43.4	75	32.6
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS					
Recov IS %	104	98	56	63	83	81	100	97	100	100	96	102	71	73				
PFNS	< 10	< 10	< 1	< 1	<20.0	<20.0	<5	<5	<200	<200	0	0	< 20	< 20	<	<		
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		EXT		13C-PFOS		13C-PFOS					
Recov IS %	104	98	56	63	83	81	100	97			96	102	71	73				
4:2 FTS	13	11	9	13	<20.0	<20.0	<5	<5	<200	<200	7	7	< 20	< 20	10	27.5		
Int Std	13C-4:2 FTS		13C-4:2 FTS		13C-4:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-4:2 FTS					
Recov IS %	166	112	62	64	170	203	380	370			31	34	193	194				
6:2 FTS	5300	5900	1625	2066	5791	5510	1548	1619	9582	8123	1974	2055	166089	178030	28229	216.2	3339	59.4
Int Std	13C-6:2 FTS		13C-6:2 FTS		13C-6:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-6:2 FTS					
Recov IS %	412	380	1256	929	192	214	380	370			31	34	4414	4571				
8:2 FTS	< 10	< 10	1	1	<20.0	<20.0	<5	<5	<100	<100	0	0	< 20	< 20	<	<		
Int Std	13C-8:2 FTS		13C-8:2 FTS		13C-8:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-8:2 FTS					
Recov IS %	106	89	301	224	132	136	380	370			31	34	99	95				
FOSA	< 10	< 10	< 2	< 2	<20.0	<20.0	<5	<5	<200	<200	0	0	< 20	< 20	<	<		
Int Std	13C-FOSA		13C-FOSA		D-FOSA		13C-FOSA		EXT		13C-FOSA		13C-FOSA					
Recov IS %	96	70	99	92	52	43	87	84			67	60	10	7				

RESULTATEN EFFLUENT 2

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Gemidd	RSD%	Gemidd	RSD%
MeFOSAA	< 10	< 10	< 1	< 1	<20.0	<20.0	<5	<5	<200	<200	0	0	< 20	< 20	<	<		
Int Std	D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		13C-Me-FOSAA		D-MeFOSAA					
Recov IS %	103	91	423	250	89	88	104	101	97	99	82	96	40	41				
EtFOSAA	< 10	< 10	< 1	< 1	<20.0	<20.0	<5	<5	<200	<200	0	0	< 20	< 20	<	<		
Int Std	D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		EXT		13C-Me-FOSAA		D-MeFOSAA					
Recov IS %	103	91	423	250	89	88	104	101			82	96	40	41				
8:2 diPAP	< 10	< 10	< 1	< 1	-	-	<5	<5	<2000	<2000	0	0	< 20	< 20	<	<		
Int Std	13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP					
Recov IS %	8	7	337	280	12	5	160	155	76	106	9	36	99	37				
HFPO-DA (GenX)	71	83	81	79	83	83	84	73	120	105	82	80	135	156	94	27.2		
Int Std	13C-Gen-X		13C-Gen-X		13C-Gen-X		13C-Gen-X		EXT		13C-Gen-X		13C-Gen-X					
Recov IS %	6	106	114	107	71	82	126	123			88	84	100	93				
ADONA	< 10	< 10	2	2	<20.0	<20.0	<5	<5	<100	<100	2	2	< 20	< 20	<	<		
Int Std	13C-Gen-X		13C-PFHpA		13C-Gen-X		13C-Gen-X		IS		13C-PFOA		13C-Gen-X					
Recov IS %	6	106	114	107	71	82	126	123			91	92	100	93				
PFECHS	< 10	< 10	< 10	< 10	<20.0	<20.0	<5	<5	<100	<100	0	0	< 20	< 20	<	<		
Int Std	13C-PFOA		13C-PFOS		13C-PFOA		13C-8:2 diPAP		EXT		13C-PFOA		13C-PFOS					
Recov IS %	102	107	56	63	88	95	160	155			91	92	71	73				

RESULTATEN EFFLUENT 2

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Gemidd	RSD%	Gemidd	RSD%
PFODA	< 10	< 10	< 2	< 2	-	-	<5	<5	<1000	<1000	0	0	67	< 20	<	<		
Int Std	13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		EXT		13C-PFHxDA		13C-PFHxDA					
Recov IS %	8	10	131	116	8	3	135	132			14	34	17	3				
PFDS	< 10	< 10	< 1	< 1	<20.0	<20.0	<5	<5	<500	<500	0	0	< 20	< 20	<	<		
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		EXT		13C-PFOS		13C-PFOS					
Recov IS %	104	98	56	63	83	81	100	97			96	102	71	73				
PFTrDA	< 10	< 10	1	1	<20.0	<20.0	<5	<5	<1000	<1000	0	0	< 20	< 20	<	<		
Int Std	13C-PFDoA		13C-PFDoA		13C-PFDoA		13C-PFDoA		EXT		13C-PFDoA		13C-PFDoA					
Recov IS %	75	80	184	133	78	46	94	91			32	69	14	16				
10:2 FTS	< 10	< 10	< 4	< 4	<20.0	<20.0	<5	<5	<2000	<2000	0	0	< 20	< 20	<	<		
Int Std	13C-8:2 FTS		13C-10:2 FTS		13C-6:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-8:2 FTS					
Recov IS %	106	89	270	192	192	214	380	370			31	34	99	95				
PFDoS	< 10	< 10	< 1	< 1	<40.0	<40.0	<5	<5	<1500	<1500	0	0	< 20	< 20	<	<		
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		EXT		13C-PFOS		13C-PFOS					
Recov IS %	104	98	56	63	83	81	100	97			96	102	71	73				
MeFOSA	< 10	< 10	< 2	< 2	<20.0	-	<5	<5	<500	<500	0	0	< 20	< 20	<	<		
Int Std	D-MeFOSA		D-MeFOSA		D-MeFOSA		D-MeFOSA		EXT		D-MeFOSA		D-MeFOSA					
Recov IS %	93	100	79	75	36	17	68	66			2	1	0	0				
EtFOSA	< 10	< 10	< 4	< 4	<20.0	-	<5	<5	<500	<500	0	0	< 20	< 20	<	<		
Int Std	D-MeFOSA		D-EtFOSA		D-EtFOSA		D-MeFOSA		EXT		D-MeFOSA		D-EtFOSA					
Recov IS %	93	100	68	81	34	9	68	66			2	1	0	0				
6:2 diPAP	< 10	< 10	< 10	< 10	<20.0	<20.0	13	11	<1000	<1000	0	0	< 20	< 20	<	<		
Int Std	13C-6:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP					
Recov IS %	36	45	337	280	63	27	160	155	76	106	2	5	99	37				
6:2/8:2 diPAP	< 10	< 10	< 10	< 10	-	-	<5	<5	<1000	<1000	0	0	< 20	< 20	<	<		
Int Std	13C-6:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP					
Recov IS %	36	45	337	280	63	27	160	155	76	106	2	5	99	37				

RESULTATEN EFFLUENT 2 – TERUGVINDING I.S.

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Min Rec.	Max Rec.	Gem Rec.
	1	2	1	2	1	2	1	2	1*	2*	1	2	1	2	%	%	%
13C-PFBA	103	104	171	174	40	41	117	114	101	103	25	27	28	27	25	174	84
13C-PFPeA	107	108	122	110	71	78	121	118	100	100	9	9	21	20	9	122	78
13C-PFHxA	108	105	123	117	85	93	112	109	98	101	10	11	35	35	10	123	82
13C-PFOA	102	107	146	143	88	95	127	124	99	102	91	92	58	59	58	146	102
13C-PFNA	102	103	264	262	93	97	108	105	99	101	103	103	54	54	54	264	118
13C-PFDA	105	104	224	177	89	85	112	109	98	101	88	99	58	56	56	224	107
13C-PFUDa	98	91	220	155	84	70	109	106	99	100	68	87	34	33	33	220	97
13C-PFDOA	75	80	184	133	78	46	94	91	96	100	32	69	14	16	14	184	79
13C-PFTeDA	37	44	129	94	43	8	112	109	92	98	5	22	1	2	1	129	57
13C-PFHxDA	8	10	131	116	8	3	135	132			14	34	17	3	3	135	51
13C-PFHxS			88	116	88	93	112	109	97	100	10	10			10	116	82
180-PFHxS	104	109											55	54	54	109	80
13C-PFOS	104	98	56	63	83	81	100	97	100	100	96	102	71	73	56	104	87
13C-6:2FTS	412	380	1256	929	192	214	380	370			31	34	4414	4571	31	4571	1099
13C-PFOSA	96	70	99	92	52	43	87	84	104	107	67	60	10	7	7	107	70
D-MeFOSA	93	100	79	75	36	17	68	66			2	1	0.1	0.2	0.1	100	45
D-MeFOSAA	103	91	423	250	89	88	104	101	97	99	82	96	40	41	40	423	122
13C-8:2 PAP																	
13C-8:2 diPAP	8	7	337	280	12	5	160	155	76	106	9	36	99	37	5	337	95
13C-GEN-X	6	106	114	107	71	82	126	123			88	84	100	93	6	126	92
13C-8:2 FTS	106	89	301	224	132	136							99	95	89	301	148
13C-4:2 FTS	166	112	62	64	170	203							193	194	62	203	146
13C-6:2diPAP	36	45			63	27					2	5			2	63	30
13C-PFHpA			149	122	102	104			100	100			51	52	51	149	98
D-EtFOSA			68	81	34	9							0.2	0.1	0.1	81	32
D-EtFOSAA			310	157	86	81	101	98					28	34	28	310	112
13C-10:2 FTS			270	192											192	270	231
13C-PFBS			83	87					99	100			50	53	50	100	79

RESULTATEN DRINKWATER

PFAS ng/l															ALLE RESULTATEN				UITSCHIETERS VERWIJDERD			
	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Additie	Gemidd	Recov	RSD	Additie	Gemidd	Recov	RSD
	1	2	1	2	1	2	1	2	1*	2*	1	2	1	2	ng/l	ng/l	%	%	ng/l	ng/l	%	%
PFBA	NG	NG	20.5	19.7	29.1	23.6	26.5	25.3	27.5	26.1	22.4	21.2	54.3	35.1	23.6	27.6	117	34.1	23.6	24.2	103	13.2
Int Std	13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA									
Recov IS %	108	107	155	137	75	84	110	111	108	100	92	95	60	66								
PFPeA	40.0	45.0	20.4	17.7	22.6	20.7	25.9	30.0	20.1	21.7	19.1	18.4	30.3	28.9	21.4	25.8	121	32.2	21.4	23.0	107	20.0
Int Std	13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA									
Recov IS %	108	106	122	133	87	88	112	108	106	98	96	98	53	59								
PFHxA	19.0	21.0	17.0	17.9	21.3	20.6	21.8	20.5	21.0	22.7	21.6	20.1	28.5	27.5	23.3	21.5	92	14.8				
Int Std	13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA									
Recov IS %	104	110	129	127	85	89	116	111	108	99	102	101	67	74								
PFHpA	17.0	20.0	16.0	15.4	18.2	18.2	17.9	17.7	17.8	19.3	15.8	15.2	24.4	22.6	18.8	18.2	97	14.5				
Int Std	13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA									
Recov IS %	104	110	154	167	82	87	116	111	106	97	102	101	67	74								
PFOA	37.0	41.0	26.5	28.5	31.4	29.7	31.4	31.4	31.2	34.0	26.3	25.5	41.0	37.7	31.4	32.3	103	16.0				
Int Std	13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA									
Recov IS %	102	106	160	165	78	82	113	107	107	99	104	94	54	67								
PFNA	20.0	21.0	20.4	19.0	22.3	21.9	23.9	22.8	23.2	24.3	21.0	21.0	30.7	29.6	24.3	22.9	94	14.8				
Int Std	13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA									
Recov IS %	100	107	162	176	76	79	102	97	106	98	100	84	39	51								
PFDA	13.0	12.0	12.2	12.9	13.6	12.7	13.8	13.5	11.7	12.4	12.5	12.8	17.3	17.7	14.2	13.4	95	13.6				
Int Std	13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA									
Recov IS %	93	108	135	145	71	78	108	101	105	98	95	70	35	50								

RESULTATEN DRINKWATER

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Additie	Gemidd	Recov %	RSD %	Additie	Gemidd	Recov %	RSD %
PFUdA	21.0	20.0	21.2	22.1	26.7	24.8	27.2	29.0	15.4	17.8	24.8	24.6	45.4	53.2	27.1	26.7	98	39.0	27.1	22.9	84	17.6
Int Std	13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA									
Recov IS %	92	98	113	115	58	73	103	98	107	98	81	51	19	27								
PFDoA	< 10	< 10	22.2	22.8	24.0	23.6	29.0	28.9	<5	<5	23.5	22.6	58.9	96.2	26.1	35.2	135	68.6	26.1	24.6	94	11.2
Int Std	13C-PFDoA		13C-PFDoA		13C-PFDoA		13C-PFDoA		13C-PFDoA		13C-PFDoA		13C-PFDoA									
Recov IS %	75	83	130	141	45	63	84	80	107	98	57	32	8	10								
PFTeDA	18.0	12.0	16.6	15.6	-	19.6	19.8	21.7	<10	<10	20.8	21.7	83.9	185.0	21.4	39.5	185	132.0	21.4	18.4	86	17.5
Int Std	13C-PFTeDA		13C-PFTeDA		13C-PFTeDA		13C-PFTeDA		EXT		13C-PFTeDA		13C-PFTeDA									
Recov IS %	35	40	123	132	12	31	97	91			14	5	2	1								
PFHxDA	< 10	< 10	28.7	22.5	-	-	25.5	26.3	<10	<10	27.7	25.1	39.1	42.2	29.8	29.6	99	23.9				
Int Std	13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		EXT		13C-PFHxDA		13C-PFHxDA									
Recov IS %	11	8	124	134	2	3	135	131			14	7	15	9								
PFBS	16.0	18.0	15.9	15.5	19.8	19.2	20.3	20.6	18.4	20.0	18.2	20.4	24.2	21.4	19.0	19.1	101	12.4				
Int Std	180-PFHxS		13C-PFBS		13C-PFHxS		13C-PFHxS		13C-PFBS		13C-PFHxS		13C-PFBS									
Recov IS %	103	109	93	104	81	93	100	99	107	98	96	78	53	65								
PFPeS	21.0	22.0	17.6	15.7	24.7	24.1	27.8	27.4	26.1	26.0	22.6	24.0	29.6	25.1	25.8	23.8	92	16.1				
Int Std	180-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		EXT		13C-PFHxS		180-PFHxS									
Recov IS %	103	109	112	126	81	93	100	99			96	78	45	64								
PFHxS	19.0	21.0	16.4	14.3	21.3	20.1	23.3	22.6	20.7	22.3	18.5	18.7	28.8	26.3	21.9	21.0	96	17.8				
Int Std	180-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		180-PFHxS									
Recov IS %	103	109	112	126	81	93	100	99	107	98	96	78	45	64								

RESULTATEN DRINKWATER

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Additie	Gemidd	Recov %	RSD %	Additie	Gemidd	Recov %	RSD %
PFHpS	18.0	20.0	21.3	23.0	22.0	21.4	24.9	25.3	25.8	25.8	21.4	17.5	20.5	21.4	24.2	22.0	91	12.2				
Int Std	180-PFHxS		13C-PFOS		13C-PFHxS		13C-PFHxS		EXT		13C-PFHxS		180-PFHxS									
Recov IS %	103	109	99	97	81	93	100	99			96	78	45	64								
PFOS	35.0	35.0	23.5	28.2	29.1	28.3	29.0	28.1	28.7	30.1	29.8	28.4	39.2	43.6	34.0	31.1	92	16.9				
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS									
Recov IS %	99	104	99	97	70	85	100	98	106	99	88	49	33	52								
PFNS	18.0	17.0	20.6	22.8	18.7	19.2	25.2	24.3	18.1	18.0	17.0	14.3	15.2	21.1	22.6	19.3	85	16.7				
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		EXT		13C-PFOS		13C-PFOS									
Recov IS %	99	104	99	97	70	85	100	98			88	49	33	52								
4:2 FTS	14.0	13.0	16.6	14.1	17.8	17.3	22.8	20.6	18.6	17.7	16.4	16.5	15.6	14.6	16.1	16.8	104	15.8				
Int Std	13C-4:2 FTS		13C-4:2 FTS		13C-4:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-4:2 FTS									
Recov IS %	110	111	117	124	123	142	107	107			98	96	189	194								
6:2 FTS	21.0	21.0	26.1	30.0	26.0	30.3	24.7	23.6	<20	<20	30.2	28.8	40.5	39.1	27.1	28.4	105	21.9				
Int Std	13C-6:2 FTS		13C-6:2 FTS		13C-6:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-6:2 FTS									
Recov IS %	90	85	182	164	104	112	107	107			98	96	192	199								
8:2 FTS	18.0	20.0	24.0	25.8	25.8	25.9	26.4	27.5	25.5	28.1	24.7	19.8	35.3	37.4	26.8	26.0	97	20.4				
Int Std	13C-8:2 FTS		13C-8:2 FTS		13C-8:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-8:2 FTS									
Recov IS %	91	100	153	165	97	106	107	107			98	96	85	96								
FOSA	15.0	17.0	16.3	16.0	18.4	18.3	10.4	10.1	20.5	21.2	16.5	16.9	35.1	47.2	19.3	19.9	103	49.2	19.3	16.4	85	20.7
Int Std	13C-FOSA		13C-FOSA		D-FOSA		13C-FOSA		EXT		13C-FOSA		13C-FOSA									
Recov IS %	55	71	87	101	54	59	78	78			39	44	13	9								

RESULTATEN DRINKWATER

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Additie	Gemidd	Recov %	RSD %	Additie	Gemidd	Recov %	RSD %	
MeFOSAA	13.0	15.0	23.7	17.6	18.5	18.3	16.2	15.5	15.1	16.3	15.6	15.4	26.3	30.0	18.4	18.3	100	26.7	18.4	16.7	91	16.2	
Int Std	D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		13C-Me-FOSAA		D-MeFOSAA										
Recov IS %	94	90	114	130	72	81	96	99	106	99	86	65	25	31									
EtFOSAA	18.0	20.0	18.0	22.5	21.4	19.4	22.4	20.3	12.8	12.3	17.2	15.7	31.2	42.1	21.6	21.0	97	36.5	21.6	18.3	85	18.5	
Int Std	D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		EXT		13C-Me-FOSAA		D-MeFOSAA										
Recov IS %	94	90	114	130	72	81	96	99			86	65	25	31									
8:2 diPAP	< 10	< 10	8.7	9.3	-	-	12.2	13.3	<20	<20	12.1	11.1	< 10	< 10	14.5	11.1	77	16.1					
Int Std	13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP										
Recov IS %	9	8	89	108	3	3	151	142	106	87	16	8	37	18									
HFPO-DA (GenX)	25.0	26.0	26.6	26.7	31.7	29.6	28.1	27.2	34.8	33.6	26.8	29.7	44.3	46.2	30.9	31.2	101	21.3	30.9	28.8	93	10.8	
Int Std	13C-Gen-X		13C-Gen-X		13C-Gen-X		13C-Gen-X		EXT		13C-Gen-X		13C-Gen-X										
Recov IS %	15	110	101	103	80	80	120	115			103	91	58	62									
ADONA	10.0	12.0	9.4	9.8	12.6	13.1	14.1	14.4	15.8	15.4	10.6	11.5	20.3	20.3	13.8	13.5	98	25.9	13.8	12.4	90	17.7	
Int Std	13C-Gen-X		13C-PFHpa		13C-Gen-X		13C-Gen-X		IS		13C-PFOA		13C-Gen-X										
Recov IS %	15	110	101	103	80	80	120	115			104	94	58	62									
PFECHS	14.0	14.0	15.1	17.0	15.8	17.5	14.6	15.4	18.9	18.6	12.3	8.3	10.4	13.7	17.2	14.7	85	20.3					
Int Std	13C-PFOA		13C-PFOS		13C-PFOA		13C-8:2 diPAP		EXT		13C-PFOA		13C-PFOS										
Recov IS %	102	106	99	97	78	82	151	142			104	94	33	52									

RESULTATEN DRINKWATER

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Additie	Gemidd	Recov %	RSD %	Additie	Gemidd	Recov %	RSD %
PFODA	< 10	< 10	12.8	11.1	-	-	25.9	27.4	<10	<10	8.5	10.3	< 10	< 10	14.6	16.0	110	52.5				
Int Std	13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		EXT		13C-PFHxDA		13C-PFHxDA									
Recov IS %	11	8	124	134	2	3	135	131			14	7	15	9								
PFDS	16.0	12.0	11.2	12.7	<20.0	<20.0	16.5	17.0	<5	<5	9.6	7.2	< 10	11.5	16.7	12.6	76	26.2				
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		EXT		13C-PFOS		13C-PFOS									
Recov IS %	99	104	99	97	70	85	100	98			88	49	33	52								
PFTrDA	13.0	11.0	18.3	15.5	<20.0	<20.0	25.3	26.3	<10	<10	10.2	7.6	24.2	34.5	21.5	18.6	86	46.7	21.5	16.8	78	41.8
Int Std	13C-PFDoA		13C-PFDoA		13C-PFDoA		13C-PFDoA		EXT		13C-PFDoA		13C-PFDoA									
Recov IS %	75	83	130	141	45	63	84	80			57	32	8	10								
10:2 FTS	< 10	< 10	7.0	7.4	<20.0	<20.0	<5	<5	<20	<20	3.5	2.1	< 10	< 10	9.8	<	<	<				
Int Std	13C-8:2 FTS		13C-10:2 FTS		13C-6:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-8:2 FTS									
Recov IS %	91	100	163	141	104	112	107	107			98	96	85	96								
PFDoS	11.0	11.0	18.1	18.6	<40.0	<40.0	20.8	20.3	<15	<15	5.1	3.1	< 10	< 10	21.8	13.5	62	51.5				
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		EXT		13C-PFOS		13C-PFOS									
Recov IS %	99	104	99	97	70	85	100	98			88	49	33	52								
MeFOSA	10.0	12.0	9.0	9.2	<20.0	<20.0	16.0	22.4	<5	<5	15.0	12.3	35*	174*	20.2	13.2	65	34.1	20.2	13.2	65	20.9
Int Std	D-MeFOSA		D-MeFOSA		D-MeFOSA		D-MeFOSA		EXT		D-MeFOSA		D-MeFOSA									
Recov IS %	80	89	69	80	21	28	44	39			11	1	1	0.1								
EtFOSA	< 10	< 10	9.3	9.0	-	-	13.9	17.4	<5	<5	10.5	6.4*	13.7*	51*	18.0	12.0	67	29.7				
Int Std	D-MeFOSA		D-EtFOSA		D-EtFOSA		D-MeFOSA		EXT		D-MeFOSA		D-EtFOSA									
Recov IS %	80	89	68	80	15	19	44	39			11	1	0.4	0.1								
6:2 diPAP	12.0	< 10	7.5	9.9	22.8	19.3	11.4	8.5	<10	<10	18.0	19.1	< 10	< 10	22.1	14.3	65	38.9				
Int Std	13C-6:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP									
Recov IS %	27	43	89	108	35	48	151	142	106	87	19	8	37	18								
6:2/8:2 diPAP	< 10	< 10	8.9	11.1	-	-	6.3	5.6	<10	<10	5.6	6.0	< 10	< 10	19.4	7.3	37	31.3				
Int Std	13C-6:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP									
Recov IS %	27	43	89	108	35	48	151	142	106	87	19	8	37	18								

5/12/2023

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RESULTATEN DRINKWATER – TERUGVINDING I.S.

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Min Rec.	Max Rec.	Gem Rec.
	1	2	1	2	1	2	1	2	1*	2*	1	2	1	2	%	%	%
13C-PFBA	108	107	155	137	75	84	110	111	108	100	92	95	60	66	60	155	101
13C-PFPeA	108	106	122	133	87	88	112	108	106	98	96	98	53	59	53	133	98
13C-PFHxA	104	110	129	127	85	89	116	111	108	99	102	101	67	74	67	129	102
13C-PFOA	102	106	160	165	78	82	113	107	107	99	104	94	54	67	54	165	103
13C-PFNA	100	107	162	176	76	79	102	97	106	98	100	84	39	51	39	176	98
13C-PFDA	93	108	135	145	71	78	108	101	105	98	95	70	35	50	35	145	92
13C-PFUDa	92	98	113	115	58	73	103	98	107	98	81	51	19	27	19	115	81
13C-PFDoA	75	83	130	141	45	63	84	80	107	98	57	32	8	10	8	141	72
13C-PFTeDA	35	40	123	132	12	31	97	91	104	93	14	5	2	1	1	132	56
13C-PFHxDA	11	8	124	134	2	3	135	131			14	7	15	9	2	135	49
13C-PFHxS			112	126	81	93	100	99	107	98	96	78			78	126	99
18C-PFHxS	103	109											45	64	45	109	80
13C-PFOS	99	104	99	97	70	85	100	98	106	99	88	49	33	52	33	106	84
13C-6:2FTS	90	85	182	164	104	112	107	107			98	96	192	199	85	199	128
13C-PFOA	55	71	87	101	54	59	78	78	96	111	39	44	13	9	9	111	64
D-MeFOA	80	89	69	80	21	28	44	39			11	1	1	0.1	0.1	89	38
D-MeFOA	94	90	114	130	72	81	96	99	106	99	86	65	25	31	25	130	85
13C-8:2 PAP																	
13C-8:2 diPAP	9	8	89	108	3	3	151	142	106	87	16	8	37	18	3	151	56
13C-GEN-X	15	110	101	103	80	80	120	115			103	91	58	62	15	120	87
13C-8:2 FTS	91	100	153	165	97	106							85	96	85	165	111
13C-4:2 FTS	110	111	117	124	123	142							189	194	110	194	139
13C-6:2diPAP	27	43			35	48					19	8			8	48	30
13C-PFHpA			154	167	82	87			106	97			58	67	58	167	102
D-EtFOA			68	80	15	19							0.4	0.1	0.1	80	31
D-EtFOA			141	108	65	78	94	96					19	24	19	141	78
13C-10:2 FTS			163	141											141	163	152
13C-PFBS			93	104					107	98			53	65	53	107	87

RESULTATEN GRONDWATER

PFAS ng/l															ALLE RESULTATEN				UITSCHIETERS VERWIJDERD			
	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Additie	Gemidd	Recov	RSD	Additie	Gemidd	Recov	RSD
	1	2	1	2	1	2	1	2	1*	2*	1	2	1	2	ng/l	ng/l	%	%	ng/l	ng/l	%	%
PFBA	NG	NG	39.2	41.8	51.3	49.9	54.8	55.2	53.3	55.1	48.0	46.1	107.4	105.9	52.7	59.0	112	38.7	52.7	49.5	94	11.5
Int Std	13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA		13C-PFBA									
Recov IS %	107	109	116	119	62	68	111	111	103	102	84	83	40	39								
PFPeA	64.0	71.0	28.3	26.2	32.6	32.3	27.7	29.8	32.2	33.1	30.8	29.2	45.8	78.5	33.5	40.1	120	44.1	33.5	31.6	94	16.5
Int Std	13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA		13C-PFPeA									
Recov IS %	107	108	162	177	76	77	109	110	102	101	95	96	35	35								
PFHxA	31.0	33.0	27.0	25.5	31.7	30.9	32.2	30.0	31.5	32.1	32.7	32.0	48.5	64.9	34.5	34.5	100	29.4	34.5	30.8	89	7.5
Int Std	13C-PFHxA		13C-PFHxA		13C-PFHxA		13C-PFHxA ²		13C-PFHxA		13C-PFHxA		13C-PFHxA									
Recov IS %	103	107	114	128	85	86	114	113	102	101	94	95	50	59								
PFHpA	29.0	34.0	24.9	28.3	31.8	31.4	28.4	29.3	31.3	32.3	29.5	26.8	38.7	70.3	32.6	33.3	102	33.5	32.6	30.4	93	11.4
Int Std	13C-PFHpA		13C-PFHpA		13C-PFHpA		13C-PFHpA		13C-PFHpA		13C-PFHpA		13C-PFHpA									
Recov IS %	103	107	120	122	85	86	114	113	102	100	94	95	50	59								
PFOA	79.0	88.0	54.4	57.8	66.9	64.6	66.1	69.2	67.8	68.2	59.1	59.7	82.1	108.0	67.4	70.8	105	20.2	67.4	67.9	101	14.6
Int Std	13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA		13C-PFOA									
Recov IS %	102	108	140	144	81	82	115	113	103	102	103	91	63	58								
PFNA	30.0	32.0	31.3	29.9	34.1	33.2	34.5	31.4	34.4	36.7	32.6	35.1	41.7	71.5	36.3	36.3	100	29.1	36.3	33.6	93	9.4
Int Std	13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA		13C-PFNA									
Recov IS %	101	105	139	146	78	80	96	99	101	100	92	83	51	44								
PFDA	21.0	27.0	20.3	24.3	25.0	24.3	24.7	23.7	22.0	24.7	25.0	23.5	31.3	64.9	27.3	27.3	100	40.9	27.3	24.4	89	11.2
Int Std	13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA		13C-PFDA									
Recov IS %	98	106	123	116	72	80	108	108	102	98	90	88	52	41								

RESULTATEN GRONDWATER

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Additie	Gemidd	Recov %	RSD %	Additie	Gemidd	Recov %	RSD %
PFUdA	29.0	31.0	29.3	28.3	35.8	36.1	38.6	38.7	20.5	24.9	39.2	33.8	63.5	108.2	37.8	39.8	105	55.5	37.8	32.1	85	18.5
Int Std	13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA		13C-PFUdA									
Recov IS %	93	97	108	125	65	75	98	101	104	99	70	71	33	22								
PFDaA	14.0	14.0	41.7	41.5	42.3	41.9	48.9	51.1	16.1	17.2	43.3	39.1	110.2	213.8	47.4	52.5	111	99.7	47.4	34.3	72	42.0
Int Std	13C-PFDaA		13C-PFDaA		13C-PFDaA		13C-PFDaA		13C-PFDaA		13C-PFDaA		13C-PFDaA									
Recov IS %	80	87	114	133	59	66	84	81	100	99	46	41	16	7								
PFTeDA	20.0	20.0	25.2	24.2	32.9	33.1	31.2	30.9	<10	<10	34.7	31.4	113.7	<10	33.5	36.1	108	72.7	33.5	28.4	85	19.5
Int Std	13C-PFTeDA		13C-PFTeDA		13C-PFTeDA		13C-PFTeDA		EXT		13C-PFTeDA		13C-PFTeDA									
Recov IS %	46	38	110	119	51	28	98	95			3	10	2	1								
PFHxDA	36.0	24.0	43.4	38.8	46.4	-	41.3	43.0	<10	<10	49.9	45.2	16.8	80.7	51.1	42.3	83	38.1	51.1	40.9	80	18.4
Int Std	13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		EXT		13C-PFHxDA		13C-PFHxDA									
Recov IS %	12	8	111	122	60	4	136	134			1	8	5	20								
PFBS	37.0	43.0	35.3	34.3	43.3	41.5	41.3	41.4	41.1	41.2	36.7	40.2	50.2	73.2	41.4	42.8	104	22.4	41.4	40.5	98	10.2
Int Std	180-PFHxS		13C-PFBS		13C-PFHxS		13C-PFHxS		13C-PFBS		13C-PFHxS		13C-PFBS									
Recov IS %	103	107	79	86	83	91	101	102	102	101	95	89	50	50								
PFPeS	30.0	30.0	23.8	22.7	34.6	32.8	35.1	36.1	34.6	35.5	30.0	31.6	31.5	70.2	35.3	34.2	97	32.6	35.3	31.4	89	13.5
Int Std	180-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		EXT		13C-PFHxS		180-PFHxS									
Recov IS %	103	107	100	111	83	91	101	102			95	89	67	53								
PFHxS	32.0	43.0	29.3	25.2	34.8	34.0	35.6	37.2	34.0	36.4	32.5	31.8	42.8	74.7	37.0	37.4	101	31.4	37.0	34.5	93	14.1
Int Std	180-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		13C-PFHxS		180-PFHxS									
Recov IS %	103	107	100	111	83	91	101	102	104	101	95	89	67	53								

RESULTATEN GRONDWATER

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Additie	Gemidd	Recov %	RSD %	Additie	Gemidd	Recov %	RSD %
PFHpS	24.0	25.0	31.8	28.4	27.5	29.0	29.9	29.8	31.4	33.3	27.4	27.3	28.4	53.7	31.5	30.5	97	23.4	31.5	28.7	91	9.1
Int Std	180-PFHxS		13C-PFOS		13C-PFHxS		13C-PFHxS		EXT		13C-PFHxS		180-PFHxS									
Recov IS %	103	107	85	98	83	91	101	102			95	89	67	53								
PFOS	55.0	65.0	44.4	41.4	53.8	53.6	50.6	52.2	51.1	54.6	56.9	54.1	77.9	99.7	64.2	57.9	90	25.6	64.2	54.7	85	16.5
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS									
Recov IS %	104	107	85	98	69	85	98	100	106	104	83	77	62	44								
PFNS	23.0	24.0	30.6	29.7	27.5	28.2	33.1	35.2	22.6	26.7	23.5	22.3	31.2	47.9	32.8	29.0	88	23.6	32.8	27.5	84	15.5
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		EXT		13C-PFOS		13C-PFOS									
Recov IS %	104	107	85	98	69	85	98	100			83	77	62	44								
4:2 FTS	27.0	28.0	37.6	35.4	32.5	32.8	40.2	41.5	36.5	35.2	31.3	31.3	28.6	50.2	32.7	34.9	107	17.8				
Int Std	13C-4:2 FTS		13C-4:2 FTS		13C-4:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-4:2 FTS									
Recov IS %	111	108	84	84	131	138	112	107			99	96	234	280								
6:2 FTS	48.0	93.0	72.4	72.1	62.8	81.4	49.6	51.6	63.1	63.6	61.8	63.5	70.0	85.7	62.3	67.0	108	19.8				
Int Std	13C-6:2 FTS		13C-6:2 FTS		13C-6:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-6:2 FTS									
Recov IS %	93	97	139	127	110	105	112	107			99	96	250	339								
8:2 FTS	26.0	26.0	29.0	35.0	36.2	36.9	33.9	37.4	34.6	39.6	29.4	30.0	41.9	62.5	36.6	35.6	97	25.7	36.6	33.5	92	15.1
Int Std	13C-8:2 FTS		13C-8:2 FTS		13C-8:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-8:2 FTS									
Recov IS %	88	104	102	123	103	99	112	107			99	96	95	96								
FOSA	38.0	37.0	30.3	38.4	31.2	35.0	20.6	21.7	57.9	59.1	33.3	30.0	93.5	149.7	29.1	48.3	166	72.0	29.1	31.5	108	19.9
Int Std	13C-FOSA		13C-FOSA		D-FOSA		13C-FOSA		EXT		13C-FOSA		13C-FOSA									
Recov IS %	57	74	92	77	71	61	83	78			45	49	6	5								

RESULTATEN GRONDWATER

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Additie	Gemidd	Recov %	RSD %	Additie	Gemidd	Recov %	RSD %
MeFOSAA	24.0	28.0	34.3	30.8	31.0	31.1	28.0	26.9	27.8	30.6	29.5	27.8	44.3	75.6	32.0	33.6	105	38.7	32.0	30.3	95	16.2
Int Std	D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		13C-Me-FOSAA		D-MeFOSAA									
Recov IS %	93	91	96	118	77	82	96	97	102	99	74	71	35	25								
EtFOSAA	27.0	33.0	29.0	30.8	30.3	29.8	28.3	29.5	20.5	23.0	28.7	28.1	54.5	112.0	33.3	36.0	108	64.3	33.3	28.2	85	12.1
Int Std	D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		D-MeFOSAA		EXT		13C-Me-FOSAA		D-MeFOSAA									
Recov IS %	93	91	96	118	77	82	96	97			74	71	35	25								
8:2 diPAP	< 10	< 10	20.3	25.3	27.4	-	25.5	26.7	<20	<20	28.3	24.7	< 10	< 10	27.8	25.5	92	10.2				
Int Std	13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP									
Recov IS %	13	8	173	186	61	11	150	149	71	69	4	14	30	51								
HFPO-DA (GenX)	50.0	52.0	57.6	57.3	62.9	58.5	52.2	51.6	69.6	71.3	61.9	56.3	82.0	134.7	66.0	65.6	99	33.3	66.0	58.4	89	11.8
Int Std	13C-Gen-X		13C-Gen-X		13C-Gen-X		13C-Gen-X		EXT		13C-Gen-X		13C-Gen-X									
Recov IS %	11	109	88	93	82	81	119	119			89	89	58	52								
ADONA	15.0	17.0	14.7	15.1	19.2	19.6	20.6	21.1	21.6	22.8	16.2	17.1	28.7	71.0	20.4	22.8	112	62.9	20.4	19.1	94	20.6
Int Std	13C-Gen-X		13C-PFHpA		13C-Gen-X		13C-Gen-X		IS		13C-PFOA		13C-Gen-X									
Recov IS %	11	109	88	93	82	81	119	119			103	91	58	52								
PFECHS	18.0	17.0	22.0	20.6	19.2	22.4	18.1	19.5	23.9	25.0	16.4	16.7	20.8	37.9	22.8	21.2	93	25.8	22.8	20.0	88	13.9
Int Std	13C-PFOA		13C-PFOS		13C-PFOA		13C-8:2 diPAP		EXT		13C-PFOA		13C-PFOS									
Recov IS %	102	108	85	98	81	82	150	149			103	91	62	44								

RESULTATEN GRONDWATER

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Additie	Gemidd	Recov %	RSD %	Additie	Gemidd	Recov %	RSD %
PFODA	<10	<10	21.2	18.5	<40.0	-	45.9	47.4	<15	<15	35.7	12.4	<10	<10	27.4	30.2	110	49.3				
Int Std	13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		13C-PFHxDA		EXT		13C-PFHxDA		13C-PFHxDA									
Recov IS %	12	8	111	122	60	4	136	134			1	8	5	20								
PFDS	21.0	20.0	22.3	22.5	21.8	22.2	27.4	27.5	10.0	12.6	14.9	13.9	20.3	25.2	28.4	20.1	71	26.8				
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		EXT		13C-PFOS		13C-PFOS									
Recov IS %	104	107	85	98	69	85	98	100			83	77	62	44								
PFTrDA	20.0	16.0	30.0	23.6	29.1	24.3	34.6	37.4	<10	<10	10.3	13.9	32.9	64.9	33.9	28.1	83	51.2	33.9	24.7	73	36.2
Int Std	13C-PFDoA		13C-PFDoA		13C-PFDoA		13C-PFDoA		EXT		13C-PFDoA		13C-PFDoA									
Recov IS %	80	87	114	133	59	66	84	81			46	41	16	7								
10:2 FTS	11.0	<10	9.4	9.3	<20.0	<20.0	6.9	7.6	<10	<10	5.4	4.8	<10	<10	15.3	7.8	51	29.3				
Int Std	13C-8:2 FTS		13C-10:2 FTS		13C-6:2 FTS		13C-6:2 FTS		EXT		13C-6:2 FTS		13C-8:2 FTS									
Recov IS %	88	104	142	151	110	105	112	107			99	96	95	96								
PFDoS	15.0	13.0	32.4	26.3	<40.0	<40.0	34.0	32.9	<15	<15	2.9	6.2	<10	<10	37.1	20.3	55	61.9	37.1	25.6	69	36.7
Int Std	13C-PFOS		13C-PFOS		13C-PFOS		13C-PFOS		EXT		13C-PFOS		13C-PFOS									
Recov IS %	104	107	85	98	69	85	98	100			83	77	62	44								
MeFOFA	<10	<10	9.2	7.9	<20.0	<20.0	10.5	15.5	<5	<5	18.9*	17.5*	*	*	26.0	10.8	41	<				
Int Std	D-MeFOFA		D-MeFOFA		D-MeFOFA		D-MeFOFA		EXT		D-MeFOFA		D-MeFOFA									
Recov IS %	84	90	76	83	37	31	48	38			2	5	0.0	0.0								
EtFOFA	<10	<10	11.0	11.0	20.4	<20.0	17.5	23.7	<3	<3	10.4*	10.2*	*	*	24.5	16.7	68	<				
Int Std	D-MeFOFA		D-EtFOFA		D-EtFOFA		D-MeFOFA		EXT		D-MeFOFA		D-EtFOFA									
Recov IS %	84	90	73	86	32	24	48	38			2	5	0.2	0.1								
6:2 diPAP	17.0	14.0	27.9	21.3	35.0	31.5	9.4	10.2	<10	<10	37.5	32.8	<10	<10	35.5	23.7	67	44.7				
Int Std	13C-6:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP									
Recov IS %	35	42	173	186	66	60	150	149	71	69	8	14	30	51								
6:2/8:2 diPAP	<10	<10	22.5	23.7	27.8	-	11.5	9.7	<10	<10	8.6	13.6	<10	<10	30.1	16.8	56	46.1				
Int Std	13C-6:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP		13C-8:2 diPAP		13C-6:2 diPAP		13C-8:2 diPAP									
Recov IS %	35	42	173	186	66	60	150	149	71	69	8	14	30	51								

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RESULTATEN GRONDWATER – TERUGVINDING I.S.

	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Min Rec.	Max Rec.	Gem Rec.
	1	2	1	2	1	2	1	2	1*	2*	1	2	1	2	%	%	%
13C-PFBA	107	109	116	119	62	68	111	111	103	102	84	83	40	39	39	119	89
13C-PFPeA	107	108	162	177	76	77	109	110	102	101	95	96	35	35	35	177	99
13C-PFHxA	103	107	114	128	85	86	114	113	102	101	94	95	50	59	50	128	96
13C-PFOA	102	108	140	144	81	82	115	113	103	102	103	91	63	58	58	144	100
13C-PFNA	101	105	139	146	78	80	96	99	101	100	92	83	51	44	44	146	94
13C-PFDA	98	106	123	116	72	80	108	108	102	98	90	88	52	41	41	123	92
13C-PFUdA	93	97	108	125	65	75	98	101	104	99	70	71	33	22	22	125	83
13C-PFDoA	80	87	114	133	59	66	84	81	100	99	46	41	16	7	7	133	72
13C-PFTEdA	46	38	110	119	51	28	98	95	98	94	3	10	2	1	1	119	57
13C-PFHxDA	12	8	111	122	60	4	136	134			1	8	5	20	1	136	52
13C-PFHxS			100	111	83	91	101	102	104	101	95	89			83	111	98
18O-PFHxS	103	107											67	53	53	107	83
13C-PFOS	104	107	85	98	69	85	98	100	106	104	83	77	62	44	44	107	87
13C-6:2FTS	93	97	139	127	110	105	112	107			99	96	250	339	93	339	139
13C-PFOSA	57	74	92	77	71	61	83	78	108	98	45	49	6	5	5	108	65
D-MeFOSA	84	90	76	83	37	31	48	38			2	5	0.0	0.0	0.0	90	41
D-MeFOSAA	93	91	96	118	77	82	96	97	102	99	74	71	35	25	25	118	83
13C-8:2 PAP																	
13C-8:2 diPAP	13	8	173	186	61	11	150	149	71	69	4	14	30	51	4	186	71
13C-GEN-X	11	109	88	93	82	81	119	119			89	89	58	52	11	119	82
13C-8:2 FTS	88	104	102	123	103	99							95	96	88	123	101
13C-4:2 FTS	111	108	84	84	131	138							234	280	84	280	146
13C-6:2diPAP	35	42			66	60					8	14			8	66	38
13C-PFHpA			120	122	85	86			102	100			62	59	59	122	92
D-EtFOSA			73	86	32	24							0.2	0.1	0.1	86	36
D-EtFOSAA			134	148	71	79	92	101					27	15	15	148	84
13C-10:2 FTS			142	151											142	151	147
13C-PFBS			79	86					102	101			50	50	50	102	78

OVERZICHT “KWANTITATIEVE”

- AW: 6:2 FTS NOK
- AW: PFHpS NOK, maar lage concentratie
- DW: alle kwantitatieve PFAS OK
- GW: PFDaDA NOK, 2 labo's rapporteren te laag gehalte, 4 labo's OK
- DW/GW: 8:2 diPAP 7 x vals negatief; LOQ 50 ng/l?

➔ WAC/IV/A/025 IS GESCHIKT
VOOR KWANTITATIEVE PFAS
BEHALVE 6:2 FTS in AW

LOQ?

	EFFLUENT 1		EFFLUENT 2		DRINKWATER		GRONDWATER	
	niet gedopeerd		niet gedopeerd		15-30 ng/l		20-60 ng/l	
	ng/l	RSD %	ng/l	RSD %	Rec %	RSD %	Rec %	RSD %
PFBA	1075	11.4	1477	14.9	103	13.2	94	11.5
PFPeA	700	16.8	2798	15.3	107	20.0	94	16.5
PFHxA	611	8.6	5144	14.4	92	14.8	89	7.5
PFHpA	439	16.4	1066	9.7	97	14.5	93	11.4
PFOA	486	14.5	311	17.7	103	16.0	101	14.6
PFNA	429	12.1	<	<	94	14.8	93	9.4
PFDA	222	11.5	<	<	95	13.6	89	11.2
PFUdA	117	19.1	<	<	84	17.6	85	18.5
PFDaDA	37.8	4.6	<	<	94	11.2	72	42.0
PFTeDA	<	<	<	<	86	17.5	85	19.5
PFHxDA	<	<	<	<	99	23.9	80	18.4
PFBS	15	28.1	4725	31.0	101	12.4	98	10.2
PFPeS	<	<	2576	19.0	92	16.1	89	13.5
PFHxS	<	<	4164	14.9	96	17.8	93	14.1
PFHpS	<	<	23	50.5	91	12.2	91	9.1
PFOS	<	<	75	32.6	92	16.9	85	16.5
PFNS	<	<	<	<	85	16.7	84	15.5
4:2 FTS	<	<	10	27.5	104	15.8	107	17.8
6:2 FTS	17.0	32.8	4258	66.1	105	21.9	108	19.8
8:2 FTS	<	<	<	<	97	20.4	92	15.1
FOSA	<	<	<	<	85	20.7	108	19.9
MeFOSAA	<	<	<	<	91	16.2	95	16.2
EtFOSAA	<	<	<	<	85	18.5	85	12.1
8:2 diPAP	<	<	<	<	77	16.1	92	10.2
HFPO-DA (GenX)	<	<	94	27.2	93	10.8	89	11.8
ADONA	<	<	<	<	90	17.7	94	20.6
PFECHS	<	<	<	<	85	20.3	88	13.9

OVERZICHT “INDICATIEVE”

	EFFLUENT 1		EFFLUENT 2		DRINKWATER		GRONDWATER	
	niet gedopeerd		niet gedopeerd		15-30 ng/l		20-60 ng/l	
	ng/l	RSD %	ng/l	RSD %	Rec %	RSD %	Rec %	RSD %
PFODA	<	<	<	<	110	52.5	110	49.3
PFDS	<	<	<	<	76	26.2	71	26.8
PFTTrDA	10.7	23.6	<	<	78	41.8	73	36.2
10:2 FTS	<	<	<	<	<	<	51	29.3
PFDoS	<	<	<	<	62	51.5	69	36.7
MeFOSA	<	<	<	<	65	20.9	<	<
EtFOSA	<	<	<	<	67	29.7	<	<
6:2 diPAP	<	<	<	<	65	38.9	67	44.7
6:2/8:2 diPAP	<	<	<	<	37	31.3	56	46.1

- AW: weinig data, PFTTrDA is OK
- DW/GW: PFDS, 10:2FTS, MeFOSA en EtFOSA OK
- DW/GW: PFODA, PFTTrDA, PFDoS, 6:2 diPAP en 6:2/8:2 diPAP NOK
- Frequent (4-6 x) vals negatieve resultaten in DW/GW voor 10:2 FTS, MeFOSA en EtFOSA, LOQ 50 ng/l?



- WAC/IV/A/025 IS GESCHIKT VOOR KWANTITATIEVE BEPALING VAN PFDS, 10:2 FTS, PFTTrDA, MeFOSA en EtFOSA
- PFODA, PFDoS, 6:2 diPAP en 6:2/8:2 diPAP blijven indicatief
- LOQ?

	BESLUIT	BESLUIT
	PROEFRONDE WATER	PROEFRONDE BODEM
PFBA	Kwantitatief	Kwantitatief
PFPeA	Kwantitatief	Kwantitatief
PFHxA	Kwantitatief	Kwantitatief
PFHpA	Kwantitatief	Kwantitatief
PFOA	Kwantitatief	Kwantitatief
PFNA	Kwantitatief	Kwantitatief
PFDA	Kwantitatief	Kwantitatief
PFUdA	Kwantitatief	Kwantitatief
PFDoA	Kwantitatief	Kwantitatief
PFTeDA	Kwantitatief	Kwantitatief
PFHxDA	Kwantitatief	Kwantitatief
PFBS	Kwantitatief	Kwantitatief
PFPeS	Kwantitatief	Kwantitatief
PFHxS	Kwantitatief	Kwantitatief
PFHpS	Kwantitatief	Kwantitatief
PFOS	Kwantitatief	Kwantitatief
PFNS	Kwantitatief	Kwantitatief
4:2 FTS	Kwantitatief	Kwantitatief
6:2 FTS	Kwantitatief*	Kwantitatief
8:2 FTS	Kwantitatief	Kwantitatief
FOSA	Kwantitatief	Kwantitatief
*6:2 FTS in AW is indicatief		

	BESLUIT	BESLUIT
	PROEFRONDE WATER	PROEFRONDE BODEM
MeFOSAA	Kwantitatief	Voorstel: kwantitatief
EtFOSAA	Kwantitatief	Voorstel: kwantitatief
8:2 diPAP	Kwantitatief	Kwantitatief
HFPO-DA (GenX)	Kwantitatief	Kwantitatief
ADONA	Kwantitatief	Kwantitatief
PFECHS	Kwantitatief	Kwantitatief
PFODA	Indicatief	Indicatief
PFDS	Voorstel: kwantitatief	Kwantitatief
PFTTrDA	Voorstel: kwantitatief	Kwantitatief
10:2 FTS	Voorstel: kwantitatief	Voorstel: indicatief
PFDoS	Indicatief	Indicatief
MeFOSA	Voorstel: kwantitatief	Voorstel: kwantitatief
EtFOSA	Voorstel: kwantitatief	Voorstel: kwantitatief
6:2 diPAP	Indicatief	Indicatief
6:2/8:2 diPAP	Indicatief	Voorstel: kwantitatief

- Indeling kwantitatieve/indicatieve dient gewijzigd te worden
 - PFDS, PFTTrDA, 10:2 FTS, MeFOSA en EtFOSA bij de kwantitatieve parameters indelen
 - 6:2 FTS in AW is indicatief
- LOQ-eis optrekken naar 50 ng/l voor 10:2 FTS, MeFOSA en EtFOSA?
- PFOS en PFOA = som van lineaire en vertakte; relevantie van andere vertakte?
- Op vraag van D.O.: extra componenten toevoegen, voorlopig bij ‘indicatieve’, validatiegegevens tegen juni 2022 naar VITO sturen

Op vraag van D.O.: PFBSA en PFHxSA toevoegen; + MePFBSA en MePFBSAA (in NTA)

perfluor-1-butaansulfonamide	PFBSA*	30334-69-1
N-methylperfluorbutaansulfonamide	MePFBSA*	68298-12-4
N-methylperfluorbutaansulfonylamide acetaat	MePFBSAA*	159381-10-9
perfluor-1-hexaansulfonamide	PFHxSA	41997-13-1

* in NTA lijst

In NTA (NL):

8:2 FTUCA (ook opgenomen in ISO 21675)

N-MeFBSA

N-MeFBSAA

PFBSA

HPFHpA

P37DMOA

9CI-PF3ONS (ook opgenomen in ISO 21675)

4H-PFUnDA

Relevant in Duitsland, eerste 2 worden soms ook gedetecteerd in stalen in NL:

CDPOS (Capstone B)

DPOSA (Capstone A)

H4PFOS

H2PFDA

“Exoten”

Afkorting	IUPAC naam	Synoniem	CAS nummer
TFA	2,2,2-trifluoroacetic acid		76-05-1
PFES	Potassium; 1,1,2,2,2-pentafluoroethanesulfonate		2837-92-5
2333 TFPA	2,3,3,3 tetrafluoropropanoic acid		359-49-9
MeFBSE	1,1,2,2,3,3,4,4,4-nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulfonamide		34454 97 2
FBSE	1,1,2,2,3,3,4,4,4-nonafluoro-N-(2-hydroxyethyl)butane-1-sulfonamide		34454-99-4
C4 Methyl amide Phosphonium curative	methyl(1,1,2,2,3,3,4,4,4-nonafluorobutylsulfonyl)azanide; tributyl(2-methoxypropyl)- phosphonium	MeFBSA-TBMOPP	332350-90-0
C4 Methyl amide Phosphonium curative	benzyl(triphenyl)phosphonium;methyl(1,1,2,2,3,3,4,4,4-nonafluorobutylsulfonyl)azanide	MeFBSA-TPBP	332350-93-3
BFAF	?		
DBI	potassium; bis(1,1,2,2,3,3,4,4,4-nonafluorobutylsulfonyl)azanide		129135-87-1
PFBSi	1,1,2,2,3,3,4,4,4-nonafluorobutane- 1-sulfonic acid		34642-43-8
FBSAA, C4 glycine acid	2-(1,1,2,2,3,3,4,4,4-nonafluorobutylsulfonylamino)acetic acid		347872-22-4

“Exoten”

FBSEE-DA	2-[carboxymethyl(1,1,2,2,3,3,4,4,4-nonafluorobutylsulfonyl)amino]acetic acid		1268835-43-3
PFSA monomer (3 casnummers)			
PBSA (68555-77-1)	N-(3-(dimethylamino)propyl)-1,1,2,2,3,3,4,4-nonafluoro-butane-1-sulfonamide	PBSF / DMAPA	68555-77-1
PFBSA-S1	3-(3-(2-hydroxyethyl(dimethyl)ammonio)propyl-(1,1,2,2,3,3,4,4,4-nonafluorobutylsulfonyl)amino)-propane-1-sulfonate	PBSA-S1	2089108-94-9
PHSA	N-(3-(dimethylamino)propyl)-1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluorohexane-1-sulfonamide		50598-28-2
PHSA-S3	3-(3-(dimethylamino)propyl-(1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluorohexylsulfonyl)amino)-propane-1-sulfonic acid		38850-60-1
PHSA-E1	2-hydroxyethyl-dimethyl-(3-(1,1,2,2,3,3,4,4,5,5,6,6,6-tridecafluorohexylsulfonylamino)propyl)ammonium		736877-37-5