PROEFRONDE BIJKOMENDE PFAS IN WATER

Werkgroep Water – 14 maart 2022

PROEFRONDE PFAS WATER

Doelstelling: evaluatie WAC/IV/A/025 (ontwerpversie november 2020) voor analyse van een aantal nieuw toegevoegde PFAS:

- PFSBA, MePFBSA, MePFBSAA, PFHxSA, PFPeDA, PFUnDS, PFTrDS
- indeling kwantitatief / indicatief
- vastleggen van haalbare detectielimieten
- bepaling van de (interlabo)reproduceerbaarheid

DEELNEMERS

Resultaten verwerkt van deelnemende labo's:

- Eurofins Analytico
- VMM
- BDB
- VITO
- Normec
- Eurofins Omegam
- AL-WEST
- WATER-LINK
- SGS Antwerpen

STALEN EN INSTRUCTIES

Aangeboden stalen (geaddeerd)

▪ Effluent 1 (Medicals)	70 - 160 ng/l
▪ Effluent 2 (RWZI)	90 - 220 ng/l
▪ Oppervlaktewater 1 (Nete)	30 - 70 ng/l
▪ Oppervlaktewater 2 (Laak)	30 - 70 ng/l
▪ Grondwater (Olen)	40 - 90 ng/l
▪ Drinkwater (Mol)	20-30 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)

EXTRACTIE

Labonr	Extractie	Elutie	Spoelstap acetaatbuffer
1	Waters OASIS WAX 150mg 6 ml 30µm	4ml MeOH - 4ml NH3/MeOH 0.1%	nee
2	Agilent SampliQ WAX Polymer 150mg 6 ml	4ml MeOH - 4ml NH3/MeOH 0.1%	nee
3	Waters OASIS WAX 150mg 6 ml	MeOH - NH3/MeOH	nee
4	Agilent SampliQ WAX polymer 150 mg	2 x 4 mL NH4OH/MeOH 2%	ja
5	directe injectie, solubilizer ACN-MeOH (3-1)	nvt	nee
6	Agilent SampliQ WAX polymer 150 mg	4ml MeOH - 4ml NH3/MeOH 0.1%	nee
7	1: OASIS WAX (MePFBSA: dir inj)	4ml MeOH - 4ml NH3/MeOH 5%	ja
	2: SampliQWAX (MePFBSA: dir inj)	8 mL 5% NH3 in ACN/MeOH (60/40)	nee
8	Strata PFAS (WAX/GCB 200mg/50mg) 6 mL	8 mL NH4OH/MeOH 1%	nee
9	Waters OASIS WAX 150mg 6 ml	4ml MeOH - 4ml NH3/MeOH 0.1%	nee

KEUZE INTERNE STANDAARDEN

	WAC/IV/A/025	1	2	3	4	5	6	7	8	9
PFSBA	13C-PFOSA	13C-PFOSA	13C-PFOS	13C3-PFHxS	C13-PFOSA	EXT	13C-PFHxS	13C-PFOSA	13C-PFOSA	13C-PFOSA
MePFBSA	13C-PFOSA	13C-PFOSA	13C-PFOS	13C3-PFHxS	C13-PFOSA	13C-PFOSA	13C-PFHxS	13C-PFOSA	13C-PFOSA	13C-PFOSA
MePFBSAA	13C-PFOSA	13C-PFOSA	13C-PFOA	13C4-PFHpA	C13-PFOSA	13C-PFOSA	13C-PFHpA	13C-PFOSA	13C-PFOSA	13C-PFOSA
PFHxSA	13C-PFOSA	13C-PFOSA	13C-PFOSA	13C8-PFOSA	C13-PFOSA	13C-PFOSA	13C-PFOSA	13C-PFOSA	13C-PFOSA	13C-PFOSA
PFPeDA	13C-PFTeDA	13C-PFTeDA	13C-PFHxDA	13C-PFTeDA	C13-PFTeDA	13C-PFTeDA	nvt	13C-PFTeDA	13C-PFHxDA	13C-PFTeDA
PFUnDS	13C-PFOS	13C-PFOS	13C-PFOS	13C8-PFOS	C13-PFOS	EXT	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS
PFTrDS	13C-PFOS	13C-PFOS	13C-PFOS	13C8-PFOS	C13-PFOS	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS	13C-PFOS

RESULTATEN EFFLUENT 1

PFAS ng/l	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
PFSBA	**38**	**35**	87	94	83	93	53	46	"104"	"113"	94	128	70	79	106	102	110	103
MePFBSA	68	68	69	66	118	86	81	76	104	99	103	145	112	90	70	75	81	68
MePFBSAA	100	107	122	119	**296**	**313**	114	112	77	88	141	168	68	128	68	65	99	80
PFHxSA	137	144	140	142	141	136	121	131	169	179	151	211	127	138	120	120	173	163
PFPeDA	90	212	<10	<10	236	252	208	190	**547**	**301**	<	<	76	93	131	152	<	<
PFUnDS	141	149	137	137	125	138	189	208	"229"	"223"	152	149	77	71	69	96	87	73
PFTrDS	66	68	58	57	67	66	90	84	114	112	78	68	42	43	61	42	52	43
					PFHxSA: 398 > 78 (Q) en 398 > 64 (q)				PFBSA en PFUnDS met externe std		PFPeDA lage respons		1: OASIS WAX 2: SampliQ Wax MePFBSA: Dir Inj		300 ml intake nodig		PFPeDA lage respons	

% Recov IS	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
13C-PFOSA	69	81	104	98	100	108	80	87	119	115	120	77	57	60	58	58	46	48
13C-PFTeDA	93	101			108	115	126	126	118	104			54	75			39	34
13C-PFOS	107	130	98	96	102	99	94	91	99	101	117	85	85	88	82	68	60	59
13C-PFOA			92	93														
PFHxDA			128	126											53	47		
13C-PFHxS					95	91					123	60						
13C-PFHpA					119	138					183	72						

RESULTATEN EFFLUENT 1

PFAS ng/l	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
PFSBA	**38**	**35**	87	94	83	93	53	46	"104"	"113"	94	128	70	79	106	102	110	103
MePFBSA	68	68	69	66	118	86	81	76	104	99	103	145	112	90	70	75	81	68
MePFBSAA	100	107	122	119	**296**	**313**	114	112	77	88	141	168	68	128	68	65	99	80
PFHxSA	137	144	140	142	141	136	121	131	169	179	151	211	127	138	120	120	173	163
PFPeDA	90	212	<10	<10	236	252	208	190	**547**	**301**	<	<	76	93	131	152	<	<
PFUnDS	141	149	137	137	125	138	189	208	"229"	"223"	152	149	77	71	69	96	87	73
PFTrDS	66	68	58	57	67	66	90	84	114	112	78	68	42	43	61	42	52	43
					PFHxSA: 398 > 78 (Q) en 398 > 64 (q)				PFBSA en PFUnDS met externe std		PFPeDA lage respons		1: OASIS WAX 2: SampliQ Wax MePFBSA: Dir Inj		300 ml intake nodig		PFPeDA lage respons	

		ALLE RESULTATEN			UITSCHIETERS VERWIJDERD		
PFAS	Gedopeerd ng/l	Gemidd ng/l	Recov %	RSD %	Gemidd ng/l	Recov %	RSD %
PFSBA	106.7	82.5	77	33.2	89	84	24.9
MePFBSA	102.1	87.7	86	25.0			
MePFBSAA	114.5	125.9	110	56.0	104	90	27.9
PFHxSA	158.0	146.9	93	16.3			
PFPeDA	130.1	207.3	159	61.7	164	126	39.3
PFUnDS	152.9	124.8	82	33.9			
PFTrDS	69.2	67.2	97	32.2			

RESULTATEN EFFLUENT 2

PFAS ng/l	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
PFSBA	82	81	72	77	89	92	47	52	"78"	"91"	84	92	72	218	90	91	110	98
MePFBSA	202	164	131	125	205	228	163	246	220	274	254	286	202	217	128	120	232	210
MePFBSAA	112	109	105	101	89	88	103	96	75	106	87	75	105	360	67	73	140	131
PFHxSA	112	116	108	119	119	121	91	100	131	153	128	147	103	242	100	103	165	147
PFPeDA	349	327	<10	<10	368	440	237	249	673	350	<	<	102	134	158	117	<	<
PFUnDS	113	103	100	102	83	82	111	118	"190"	"170"	118	98	63	63	26	59	48	45
PFTrDS	121	113	100	99	105	114	152	164	260	188	134	108	94	96	73	119	71	78
					PFHxSA: 398 > 78 (Q) en 398 > 64 (q)				PFBSA en PFUnDS met externe std		PFPeDA lage respons		1: OASIS WAX 2: SampliQ Wax MePFBSA: Dir Inj		300 ml intake nodig		PFPeDA lage respons	

% Recov IS	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
13C-PFOSA	68	80	103	101	107	100	95	92	120	107	124	68	53	26	64	74	41	51
13C-PFTeDA	96	95			114	105	110	110	112	101			55	38			24	23
13C-PFOS	114	127	99	104	100	99	92	91	105	100	120	74	55	40	89	101	51	55
13C-PFOA			102	110														
PFHxDA			121	133											40	44		
13C-PFHxS					97	98					128	65						
13C-PFHpA					129	129					186	93						

RESULTATEN EFFLUENT 2

PFAS ng/l	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
PFSBA	82	81	72	77	89	92	47	52	"78"	"91"	84	92	72	218	90	91	110	98
MePFBSA	202	164	131	125	205	228	163	246	220	274	254	286	202	217	128	120	232	210
MePFBSAA	112	109	105	101	89	88	103	96	75	106	87	75	105	360	67	73	140	131
PFHxSA	112	116	108	119	119	121	91	100	131	153	128	147	103	242	100	103	165	147
PFPeDA	349	327	<10	<10	368	440	237	249	673	350	<	<	102	134	158	117	<	<
PFUnDS	113	103	100	102	83	82	111	118	"190"	"170"	118	98	63	63	26	59	48	45
PFTrDS	121	113	100	99	105	114	152	164	260	188	134	108	94	96	73	119	71	78
					PFHxSA: 398 > 78 (Q) en 398 > 64 (q)				PFBSA en PFUnDS met externe std		PFPeDA lage respons		1: OASIS WAX 2: SampliQ Wax MePFBSA: Dir Inj		300 ml intake nodig		PFPeDA lage respons	

		ALLE RESULTATEN			UITSCHIETERS VERWIJDERD		
PFAS	Gedopeerd ng/l	Gemidd ng/l	Recov %	RSD %	Gemidd ng/l	Recov %	RSD %
PFSBA	91.1	90.5	99	41.4	82	90	20.0
MePFBSA	226.7	200.3	88	25.7			
MePFBSAA	117.1	112.3	96	57.7	98	83	20.4
PFHxSA	125.1	128.0	102	27.4			
PFPeDA	203.7	291.9	143	56.1	257	126	45.5
PFUnDS	111.0	83.2	75	35.1	87	78	29.5
PFTrDS	122.5	121.6	99	37.9	114	93	27.8

RESULTATEN OPPERVLAKTEWATER 1

PFAS ng/l	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
PFSBA	33	35	28	29	36	33	23		“40"	"38"	38	39	34	45	41	43	48	35
MePFBSA	59	61	30	37	63	49	57		69	76	66	40	51	56	41	47	62	58
MePFBSAA	39	41	42	39	43	39	43		37	38	36	33	43	58	34	35	49	33
PFHxSA	50	54	51	50	52	48	43		66	66	54	56	58	66	43	46	74	61
PFPeDA	44	79	<10	<10	134	128	36		**202**	**278**	<	<	38	56	54	57	<	<
PFUnDS	51	52	53	51	37	38	33		"79"	"74"	49	50	33	24	29	33	22	24
PFTrDS	36	35	34	31	40	40	13		60	60	35	36	29	21	26	23	18	15
					PFHxSA: 398 > 78 (Q) en 398 > 64 (q)				PFBSA en PFUnDS met externe std		PFPeDA lage respons		1: OASIS WAX 2: SampliQ Wax MePFBSA: Dir Inj		300 ml intake nodig		PFPeDA lage respons	

% Recov IS	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
13C-PFOSA	77	92	80	93	105	100	107		108	102	149	99	46	51	65	59	39	43
13C-PFTeDA	99	100			108	96	57		101	91			36	40			**17**	**16**
13C-PFOS	99	115	84	94	94	95	108		106	95	137	93	50	74	65	53	54	52
13C-PFOA			94	92														
PFHxDA			109	118											47	41		
13C-PFHxS					98	96					128	154						
13C-PFHpA					111	108					175	236						

RESULTATEN OPPERVLAKTEWATER 1

PFAS ng/l	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
PFSBA	33	35	28	29	36	33	23		“40"	"38"	38	39	34	45	41	43	48	35
MePFBSA	59	61	30	37	63	49	57		69	76	66	40	51	56	41	47	62	58
MePFBSAA	39	41	42	39	43	39	43		37	38	36	33	43	58	34	35	49	33
PFHxSA	50	54	51	50	52	48	43		66	66	54	56	58	66	43	46	74	61
PFPeDA	44	79	<10	<10	134	128	36		**202**	**278**	<	<	38	56	54	57	<	<
PFUnDS	51	52	53	51	37	38	33		"79"	"74"	49	50	33	24	29	33	22	24
PFTrDS	36	35	34	31	40	40	13		60	60	35	36	29	21	26	23	18	15
					PFHxSA: 398 > 78 (Q) en 398 > 64 (q)				PFBSA en PFUnDS met externe std		PFPeDA lage respons		1: OASIS WAX 2: SampliQ Wax MePFBSA: Dir Inj		300 ml intake nodig		PFPeDA lage respons	

		ALLE RESULTATEN			UITSCHIETERS VERWIJDERD		
PFAS	Gedopeerd ng/l	Gemidd ng/l	Recov %	RSD %	Gemidd ng/l	Recov %	RSD %
PFSBA	39.0	36.0	92	18.1			
MePFBSA	63.7	54.2	85	22.9			
MePFBSAA	45.6	40.1	88	15.9			
PFHxSA	55.9	55.2	99	16.4			
PFPeDA	65.1	100.5	154	77.9	70	107	53.2
PFUnDS	52.3	38.7	74	29.4			
PFTrDS	37.3	32.6	87	40.6			

RESULTATEN OPPERVLAKTEWATER 2

PFAS ng/l	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
PFSBA	40	40	40	36	40	41	22	25	"43"	"49"	41	47	64	59	48	46	54	44
MePFBSA	33	34	27	21	47	44	34	43	47	59	27	56	33	40	29	35	40	35
MePFBSAA	42	44	45	45	50	57	54	57	36	44	38	37	68	77	34	30	47	41
PFHxSA	65	66	62	60	63	64	58	62	73	89	66	74	88	77	57	48	92	79
PFPeDA	**15**	72	<10	<10	143	139	36	30	**218**	**227**	<	<	66	42	57	50	<	<
PFUnDS	64	63	61	60	40	46	37	48	"105"	"102"	78	64	52	39	40	57	28	35
PFTrDS	31	28	25	24	24	28	14	15	60	50	38	36	51	23	36	21	21	28
					PFHxSA: 398 > 78 (Q) en 398 > 64 (q)				PFBSA en PFUnDS met externe std		PFPeDA lage respons		1: OASIS WAX 2: SampliQ Wax MePFBSA: Dir Inj		300 ml intake nodig		PFPeDA lage respons	

% Recov IS	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
13C-PFOSA	79	95	98	80	104	102	106	101	111	104	124	44	26	45	59	61	30	37
13C-PFTeDA	93	96			75	79	72	71	108	99			31	67			23	32
13C-PFOS	96	118	98	90	105	100	117	108	96	105	105	43	21	75	59	47	44	49
13C-PFOA			101	87														
PFHxDA			128	107											36	41		
13C-PFHxS					101	101					117	36						
13C-PFHpA					109	105					140	39						

RESULTATEN OPPERVLAKTEWATER 2

PFAS ng/l	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
PFSBA	40	40	40	36	40	41	22	25	"43"	"49"	41	47	64	59	48	46	54	44
MePFBSA	33	34	27	21	47	44	34	43	47	59	27	56	33	40	29	35	40	35
MePFBSAA	42	44	45	45	50	57	54	57	36	44	38	37	68	77	34	30	47	41
PFHxSA	65	66	62	60	63	64	58	62	73	89	66	74	88	77	57	48	92	79
PFPeDA	**15**	72	<10	<10	143	139	36	30	**218**	**227**	<	<	66	42	57	50	<	<
PFUnDS	64	63	61	60	40	46	37	48	"105"	"102"	78	64	52	39	40	57	28	35
PFTrDS	31	28	25	24	24	28	14	15	60	50	38	36	51	23	36	21	21	28
					PFHxSA: 398 > 78 (Q) en 398 > 64 (q)				PFBSA en PFUnDS met externe std		PFPeDA lage respons		1: OASIS WAX 2: SampliQ Wax MePFBSA: Dir Inj		300 ml intake nodig		PFPeDA lage respons	

		ALLE RESULTATEN			UITSCHIETERS VERWIJDERD		
PFAS	Gedopeerd ng/l	Gemidd ng/l	Recov %	RSD %	Gemidd ng/l	Recov %	RSD %
PFSBA	46.9	43.0	92	24.8			
MePFBSA	48.3	38.0	79	26.5			
MePFBSAA	50.8	47.0	93	25.5			
PFHxSA	69.1	68.9	100	17.5			
PFPeDA	59.4	91.2	154	79.9	71	119	59.8
PFUnDS	66.6	50.7	76	27.2			
PFTrDS	32.0	30.9	97	40.2			

RESULTATEN GRONDWATER

PFAS ng/l	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
PFSBA	36	38	32	33	33	31	18	20	"40"	"40"	38	35	27	37	31	32	45	44
MePFBSA	79	76	57	47	74	79	101	94	118	111	90	90	110	84	**26**	**25**	90	96
MePFBSAA	32	31	29	40	27	37	39	38	43	43	27	25	29	45	21	20	40	28
PFHxSA	49	52	46	45	47	50	44	42	72	69	50	63	36	43	30	31	67	62
PFPeDA	43	99	<10	<10	128	103	31	45	**266**	**230**	<	<	27	18	61	44	<	<
PFUnDS	55	48	46	48	48	48	27	30	"78"	"72"	56	45	29	34	7	10	17	15
PFTrDS	52	49	41	41	46	51	10	14	79	75	58	45	26	16	16	12	8	6
					PFHxSA: 398 > 78 (Q) en 398 > 64 (q)				PFBSA en PFUnDS met externe std		PFPeDA lage respons		1: OASIS WAX 2: SampliQ Wax MePFBSA: Dir Inj		300 ml intake nodig		PFPeDA lage respons	

% Recov IS	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
13C-PFOSA	71	79	99	100	92	90	106	108	99	100	140	69	59	73	55	44	44	46
13C-PFTeDA	86	96			123	117	35	42	87	91			44	67			**8**	**7**
13C-PFOS	98	125	94	101	110	100	113	116	99	100	126	72	46	96	78	66	55	58
13C-PFOA			94	93														
PFHxDA			119	119											29	39		
13C-PFHxS					101	96					124	69						
13C-PFHpA					115	116					135	90						

RESULTATEN GRONDWATER

PFAS ng/l	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
PFSBA	36	38	32	33	33	31	18	20	"40"	"40"	38	35	27	37	31	32	45	44
MePFBSA	79	76	57	47	74	79	101	94	118	111	90	90	110	84	**26**	**25**	90	96
MePFBSAA	32	31	29	40	27	37	39	38	43	43	27	25	29	45	21	20	40	28
PFHxSA	49	52	46	45	47	50	44	42	72	69	50	63	36	43	30	31	67	62
PFPeDA	43	99	<10	<10	128	103	31	45	**266**	**230**	<	<	27	18	61	44	<	<
PFUnDS	55	48	46	48	48	48	27	30	"78"	"72"	56	45	29	34	7	10	17	15
PFTrDS	52	49	41	41	46	51	10	14	79	75	58	45	26	16	16	12	8	6
					PFHxSA: 398 > 78 (Q) en 398 > 64 (q)				PFBSA en PFUnDS met externe std		PFPeDA lage respons		1: OASIS WAX 2: SampliQ Wax MePFBSA: Dir Inj		300 ml intake nodig		PFPeDA lage respons	

		ALLE RESULTATEN			UITSCHIETERS VERWIJDERD		
PFAS	Gedopeerd ng/l	Gemidd ng/l	Recov %	RSD %	Gemidd ng/l	Recov %	RSD %
PFSBA	40.3	33.2	82	21.9			
MePFBSA	92.3	80.4	87	33.3	87	94	21.6
MePFBSAA	50.8	33.0	65	23.5			
PFHxSA	55.9	49.9	89	24.9			
PFPeDA	84.9	91.2	107	88.7	60	71	37.2
PFUnDS	50.3	39.6	79	46.6			
PFTrDS	50.6	35.9	71	64.1			

RESULTATEN DRINKWATER

PFAS ng/l	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
PFSBA	16	17	14	12	15	16	8	11	"18"	"18"	18	17	14	20	**36**	**35**	10	17
MePFBSA	27	25	18	17	27	20	25	19	31	36	20	46	31	23	43	56	15	27
MePFBSAA	19	19	20	18	20	18	22	22	16	18	16	12	22	37	22	21	9	14
PFHxSA	24	26	23	21	27	30	22	22	29	31	27	33	21	29	33	37	17	30
PFPeDA	<10	17	<10	<10	**65**	**59**	16	20	"147"	"136"	<	<	16	17	**68**	**77**	<	<
PFUnDS	23	24	27	25	20	21	20	18	37	35	27	23	22	**8**	**12**	20	**3**	**7**
PFTrDS	18	17	16	16	14	14	**5**	**5**	26	27	22	20	14	**3**	25	44	**0**	**1**
					PFHxSA: 398 > 78 (Q) en 398 > 64 (q)				PFBSA en PFUnDS met externe std		PFPeDA lage respons		1: OASIS WAX 2: SampliQ Wax MePFBSA: Dir Inj		300 ml intake nodig		PFPeDA lage respons	

% Recov IS	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
13C-PFOSA	69	92	95	91	102	95	103	105	115	109	135	72	53	43	64	63	78	40
13C-PFTeDA	91	105			119	124	55	65	114	87			78	**17**			**7**	**4**
13C-PFOS	113	141	92	96	101	105	103	108	99	100	118	80	67	69	64	66	100	44
13C-PFOA			97	98														
PFHxDA			120	125											36	45		
13C-PFHxS					101	102					127	71						
13C-PFHpA					101	94					156	88						

RESULTATEN DRINKWATER

PFAS ng/l	Labo 1		Labo 2		Labo 3		Labo 4		Labo 5		Labo 6		Labo 7		Labo 8		Labo 9	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
PFSBA	16	17	14	12	15	16	8	11	"18"	"18"	18	17	14	20	**36**	**35**	10	17
MePFBSA	27	25	18	17	27	20	25	19	31	36	20	46	31	23	43	56	15	27
MePFBSAA	19	19	20	18	20	18	22	22	16	18	16	12	22	37	22	21	9	14
PFHxSA	24	26	23	21	27	30	22	22	29	31	27	33	21	29	33	37	17	30
PFPeDA	<10	17	<10	<10	**65**	**59**	16	20	"147"	"136"	<	<	16	17	**68**	**77**	<	<
PFUnDS	23	24	27	25	20	21	20	18	37	35	27	23	22	**8**	**12**	20	**3**	**7**
PFTrDS	18	17	16	16	14	14	**5**	**5**	26	27	22	20	14	**3**	25	44	**0**	**1**
					PFHxSA: 398 > 78 (Q) en 398 > 64 (q)				PFBSA en PFUnDS met externe std		PFPeDA lage respons		1: OASIS WAX 2: SampliQ Wax MePFBSA: Dir Inj		300 ml intake nodig		PFPeDA lage respons	

		ALLE RESULTATEN				UITSCHIETERS VERWIJDERD		
PFAS	Gedopeerd ng/l	Gemidd ng/l		Recov %	RSD %	Gemidd ng/l	Recov %	RSD %
PFSBA		19.5	17.3	89	45.3	15	75	22.3
MePFBSA		31.8	28.0	88	39.1			
MePFBSAA		22.8	19.2	84	29.8			
PFHxSA		28.0	26.8	96	19.0			
PFPeDA		32.5	39.5	121	67.8	17	53	10.3
PFUnDS		26.1	20.7	79	42.7	24	94	22.5
PFTrDS		18.6	15.9	85	68.4	21	112	39.6

OVERZICHT - BESLUIT

	EFFLUENT 1 70 - 160 ng/l		EFFLUENT 2 90 - 220 ng/l		OPPERVLAKTEWATER 1 30 - 70 ng/l		OPPERVLAKTEWATER 2 30 - 70 ng/l		GRONDWATER 40 - 90 ng/l		DRINKWATER 20-30 ng/l		
	Recov %	RSD %	Recov %	RSD %	Recov %	RSD %	Recov %	RSD %	Recov %	RSD %	Recov %	RSD %	
PFSBA	84	24.9	90	20.0	92	18.1	92	24.8	82	21.9	75	22.3	OK
MePFBSA	86	25.0	88	25.7	85	22.9	79	26.5	94	21.6	88	39.1	OK
MePFBSAA	90	27.9	83	20.4	88	15.9	93	25.5	65	23.5	84	29.8	OK
PFHxSA	93	16.3	102	27.4	99	16.4	100	17.5	89	24.9	96	19.0	OK
PFPeDA	126	39.3	126	45.5	107	53.2	119	59.8	71	37.2	53	10.3	NOK
PFUnDS	82	33.9	78	29.5	74	29.4	76	27.2	79	50.8	94	22.5	NOK
PFTrDS	97	32.2	93	27.8	87	40.6	97	40.2	71	64.1	112	39.6	NOK

PFBSA, MePFBSA, MePFBSAA en PFHxSA: kwantitatieve parameters
PFPeDA, PFUnDS en PFTrDS: indicatieve parameters