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#### **Supplemental Material**

Estimated Transfer of Perfluoroalkyl Substances (PFAS) from Maternal Serum to Breast Milk in Women Highly Exposed from Contaminated Drinking Water: A Study in the Ronneby Mother–Child Cohort

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**Figure S1.** Exposure category cutoffs by serum PFHxS concentrations, illustrated by area (Ronneby: n = 103; Karlshamn: n = 23).

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# **Supplemental Tables**

PFAS	QC1	QC2	QC3	QC4	Duplicate
PFOA					
Mean	1.7	2.2	69.5	134.4	3.5
CV	14	10	12	11	14
PFNA					
Mean	1.4	1.4	2	131	0.4
CV	17	12	15	14	16
PFDA					
Mean	0.4	0.4	0.7	119	0.2
CV	24	18	15	12	30
PFHxS					
Mean	8.8	15.1	916	109	48.1
CV	8	8	7	8	7
PFOS					
Mean	12.7	19.1	1230	129	45
CV	11	8	8	8	11
PFUnDA					
Mean	0.5	0.5	0.6	114	0.2
CV	21	20	18	13	36
PFHpS					
Mean	0.5	0.8	74.6	0.3	1.4
CV	23	17	13	28	15

**Table S1:** Between-run precision for four quality control (QC) samples and between-batch precision for 164 duplicate samples, expressed as the mean and coefficient of variation (CV, %).

Characteristic	At least one milk sample	No milk samples
N	126	85
Maternal Age at Delivery	30.71 ± 4.74	29.37 ± 4.69
Year of Delivery		
2015	6 (4.8)	7 (8.2)
2016	27 (21.4)	21 (24.7)
2017	32 (25.4)	15 (17.6)
2018	31 (24.6)	14 (16.5)
2019	27 (21.4)	24 (28.2)
2020	3 (2.4)	1 (1.2)
Missing	0 (0.0)	3 (3.5)
Parity = Multiparous	77 (61.6)	48 (60.8)
Smoking Status		
Never Smoker	80 (63.5)	37 (43.5)
Current Smoker	7 (5.6)	3 (3.5)
Past Smoker	32 (25.4)	27 (31.8)
Missing	7 (5.6)	18 (21.2)
Education Status		
Less than high school	3 (2.4)	5 (5.9)
High school	51 (40.5)	40 (47.1)
University (3 or more years)	63 (50.0)	21 (24.7)
Other	3 (2.4)	1 (1.2)
Missing	6 (4.8)	18 (21.2)
Location of Maternal Care		
Karlshamn	23 (18.3)	7 (8.2)
Ronneby	103 (81.7)	75 (88.2)
Missing	0 (0.0)	3 (3.5)

**Table S2:** Study population characteristics for women who did vs. did not provide provide at least one milk sample, limited to the 211 women with a serum delivery sample and displayed as either N (%) or Mean ± SD

Characteristic	At least one milk sample	No milk samples
N	126	85
PFOA, ng/ml	1.31 [0.84, 2.60]	2.15 [1.22, 3.25]
PFOA, N>LOQ	126 (100.0)	85 (100.0)
PFNA, ng/ml	0.38 [0.26, 0.52]	0.36 [0.26, 0.46]
PFNA, N>LOQ	125 (99.2)	85 (100.0)
PFDA, ng/ml	0.22 [0.15, 0.32]	0.21 [0.15, 0.29]
PFDA, N>LOQ	118 (93.7)	80 (94.1)
PFUnDA, ng/ml	0.20 [0.15, 0.32]	0.18 [0.12, 0.26]
PFUnDA, N>LOQ	114 (90.5)	73 (85.9)
PFHxS, ng/ml	6.02 [0.88, 26.12]	12.91 [4.20, 35.33]
PFHxS, N>LOQ	126 (100.0)	85 (100.0)
PFHpS, ng/ml	0.42 [0.10, 1.74]	0.86 [0.24, 2.07]
PFHpS, N>LOQ	96 (76.2)	71 (83.5)
PFOS, ng/ml	11.29 [3.81, 36.58]	22.84 [6.47, 50.57]
PFOS, N>LOQ	126 (100.0)	85 (100.0)

**Table S3:** Serum PFAS concentrations at delivery for women who did vs. did not provide provide at least one milk sample, limited to the 211 women with a serum delivery sample and displayed as median [IQR] or N (%)

	Ronneby		Karlshamn					
PFAS	Ν	%>LOQ	Range	Median (IQR)	Ν	%>LOQ	Range	Median (IRQ)
Serum								
PFOA	103	100%	0.34-21.9	1.48 (1.02, 3.34 )	23	100%	0.29-1.65	0.72 (0.475, 0.99 )
PFNA	103	99%	<0.1-1.02	0.38 (0.26, 0.525 )	23	100%	0.18-0.86	0.32 (0.285, 0.465 )
PFDA	103	94%	<0.1-0.78	0.23 (0.15, 0.32 )	23	91%	<0.1-0.5	0.21 (0.15, 0.255 )
PFUnDA	103	91%	<0.1-0.58	0.2 (0.15, 0.3 )	23	87%	<0.1-0.4	0.23 (0.17, 0.32 )
PFHxS	103	100%	0.38-189	11.4 (2.55, 35.7 )	23	100%	0.15-6.42	0.37 (0.28, 0.54 )
PFHpS	103	91%	<0.1-11	0.69 (0.18, 2.04 )	23	9%	<0.1-0.34	<0.1 (<0.1, <0.1 )
PFOS	103	100%	1-310	18.3 (6.04, 43.6 )	23	100%	0.92-12.1	2.33 (1.92, 2.64 )
Colostrum								
PFOA	73	99%	<0.01-0.76	0.04 (0.03, 0.09 )	12	92%	<0.01-0.03	0.02 (0.01, 0.02 )
PFNA	73	51%	<0.01-0.06	0.01 (<0.01, 0.01)	12	8%	<0.01-0.01	<0.01 (<0.01, <0.01 )
PFDA	73	3%	<0.01-0.01	<0.01 (<0.01, <0.01 )	12	0%	-	-
PFUnDA	73	11%	<0.01-0.02	<0.01 (<0.01, <0.01 )	12	0%	-	-
PFHxS	73	82%	<0.01-3.46	0.16 (0.03, 0.54 )	12	0%	-	-
PFHpS	73	40%	<0.01-0.24	<0.01 (<0.01, 0.03)	12	0%	-	-
PFOS	73	99%	<0.01-2.66	0.14 (0.05, 0.36 )	12	75%	<0.01-0.05	0.01 (0.00993, 0.02 )
Breastmilk								
PFOA	90	97%	<0.01-0.24	0.04 (0.02, 0.07 )	19	84%	<0.01-0.04	0.01 (0.01, 0.02 )
PFNA	90	74%	<0.01-0.02	0.01 (<0.01, 0.01)	19	79%	<0.01-0.01	0.01 (0.01, 0.01 )
PFDA	90	2%	<0.01-0.01	<0.01 (<0.01, <0.01 )	19	0%	-	-
PFUnDA	90	3%	<0.01-0.01	<0.01 (<0.01, <0.01 )	19	0%	-	-
PFHxS	90	83%	<0.01-1.76	0.125 (0.02, 0.348 )	19	11%	<0.01-0.05	<0.01 (<0.01, <0.01 )
PFHpS	90	41%	<0.01-0.14	<0.01 (<0.01, 0.02)	19	11%	<0.01-0.01	<0.01 (<0.01, <0.01 )
PFOS	90	100%	0.01-2.1	0.185 (0.06, 0.442 )	19	95%	<0.01-0.06	0.02 (0.015, 0.03 )

**Table S4:** PFAS concentrations (ng/ml) by location of maternal care and sample matrix

**Table S5:** Serum PFHxS cutoffs for each exposure group

Exposure Category	PFHxS Cutoff (ng/ml)	Ν
Background	X <= 0.78	25
Intermediate	0.78 < X <= 36	76
High	X > 36	25

	Exposure Group		
Statistic	Background	Intermediate	High
PFOA			
N (%>LOQ)	25 (100)	76 (100)	25 (100)
Median (IQR)	0.7 (0.5, 0.98)	1.29 (0.908, 1.84)	5.06 (4.1, 6.01)
Range	0.29-2.22	0.34-4.49	1.44-21.9
Mean (SD)	0.786 (0.442)	1.55 (0.941)	5.79 (4.02)
PFNA			
N (%>LOQ)	25 (100)	76 (99)	25 (100)
Median (IQR)	0.31 (0.27, 0.44)	0.38 (0.25, 0.47)	0.49 (0.31, 0.65)
Range	0.13-0.58	<0.1-0.86	0.24-1.02
Mean (SD)	0.346 (0.123)	0.384 (0.173)	0.501 (0.21)
PFHxS			
N (%>LOQ)	25 (100)	76 (100)	25 (100)
Median (IQR)	0.37 (0.28, 0.51)	6.02 (2.19, 14.9)	56.1 (49.9, 68.5)
Range	0.15-0.65	0.78-36	37-189
Mean (SD)	0.392 (0.144)	9.92 (9.66)	64 (30.9)
PFOS			
N (%>LOQ)	25 (100)	76 (100)	25 (100)
Median (IQR)	2.49 (1.89, 3.05)	11.3 (5.63, 21.5)	69.3 (47.9, 96)
Range	0.92-4.51	1.89-79.3	30-310
Mean (SD)	2.43 (0.957)	17 (16)	80.6 (56.5)

**Table S6:** Serum PFAS concentrations (ng/ml) by exposure group

	Exposure Group		
Statistic	Background	Intermediate	High
PFOA			
N (%>LOQ)	13 (92)	56 (98)	16 (100)
Median (IQR)	0.02 (0.01, 0.03)	0.03 (0.02, 0.06)	0.145 (0.1, 0.202)
Range	<0.01-0.08	<0.01-0.14	0.04-0.76
Mean (SD)	0.0244 (0.0191)	0.0432 (0.0328)	0.185 (0.168)
PFNA			
N (%>LOQ)	13 (23)	56 (39)	16 (81)
Median (IQR)	<0.01 (<0.01, <0.01)	<0.01 (<0.01, 0.01)	0.01 (0.01, 0.01)
Range	<0.01-0.03	<0.01-0.06	<0.01-0.02
Mean (SD)	0.00931 (0.00642)	0.0095 (0.00741)	0.0115 (0.00435)
PFHxS			
N (%>LOQ)	13 (0)	56 (79)	16 (100)
Median (IQR)	<0.01 (<0.01, <0.01)	0.1 (0.02, 0.212)	1.09 (0.687, 1.81)
Range	<0.01-<0.01	<0.01-0.78	0.3-3.46
Mean (SD)	0.00658 (0.00155)	0.166 (0.19)	1.29 (0.827)
PFOS			
N (%>LOQ)	13 (85)	56 (96)	16 (100)
Median (IQR)	0.02 (0.01, 0.02)	0.115 (0.04, 0.195)	0.85 (0.428, 1.05)
Range	<0.01-0.08	<0.01-0.64	0.29-2.66
Mean (SD)	0.0231 (0.0217)	0.156 (0.163)	0.907 (0.617)

**Table S7:** Colostrum PFAS concentrations (ng/ml) by exposure group

	Exposure Group		
Statistic	Background	Intermediate	High
PFOA			
N (%>LOQ)	21 (90)	68 (94)	20 (100)
Median (IQR)	0.02 (0.01, 0.02)	0.03 (0.02, 0.0425)	0.115 (0.08, 0.15)
Range	<0.01-0.05	<0.01-0.1	0.04-0.24
Mean (SD)	0.0189 (0.0111)	0.0352 (0.0222)	0.125 (0.0577)
PFNA			
N (%>LOQ)	21 (76)	68 (74)	20 (80)
Median (IQR)	0.01 (0.01, 0.01)	0.01 (<0.01, 0.01)	0.01 (0.01, 0.01)
Range	<0.01-0.01	<0.01-0.02	<0.01-0.02
Mean (SD)	0.00975 (0.00062)	0.0102 (0.00221)	0.0102 (0.00243)
PFHxS			
N (%>LOQ)	21 (0)	68 (84)	20 (100)
Median (IQR)	<0.01 (<0.01, <0.01)	0.07 (0.01, 0.2)	0.83 (0.698, 1)
Range	<0.01-<0.01	<0.01-0.57	0.34-1.76
Mean (SD)	0.00707 (0)	0.122 (0.133)	0.892 (0.361)
PFOS			
N (%>LOQ)	21 (95)	68 (100)	20 (100)
Median (IQR)	0.03 (0.01, 0.04)	0.135 (0.0575, 0.25)	0.865 (0.51, 1.16)
Range	<0.01-0.04	0.01-0.71	0.39-2.1
Mean (SD)	0.0252 (0.0122)	0.176 (0.162)	0.888 (0.441)

**Table S8:** Breastmilk PFAS concentrations (ng/ml) by exposure group

Percent of Total PFAS (%)					
PFAS	Background	Intermediate	High		
Serum (N <sub>samples</sub> )	25	76	25		
PFOA	18.0	8.0	3.70		
PFNA	8.0	2.5	0.36		
PFOS	54.0	55.0	50.00		
PFHxS	9.4	29.0	43.00		
Other PFAS	3.7	1.7	0.94		
Colostrum (N <sub>samples</sub> )	13	56	16		
PFOA	29.0	16.0	7.40		
PFNA	12.0	5.1	0.65		
PFOS	25.0	36.0	36.00		
PFHxS	10.0	32.0	51.00		
Other PFAS	7.8	3.7	1.30		
Breastmilk (N <sub>samples</sub> )	21	68	20		
PFOA	24.0	14.0	6.40		
PFNA	13.0	5.3	0.59		
PFOS	31.0	45.0	44.00		
PFHxS	9.8	26.0	46.00		
Other PFAS	7.2	3.2	1.00		

**Table S9:** The average relative contribution of each PFAS to the sum of PFAS (PFOA, PFNA, PFDA, PFUnDA, PFHxS, PFHpS and PFOS), by matrix and exposure category.

**Table S10:** Estimated transfer efficiency (TE, 95% CI) by PFAS and lactation stage, calculated from a mixed-effects model with an interaction term between PFAS compound and lactation stage ( $N_{participants} = 126$  and  $N_{observations} = 776$ ). P-values are comparing transfer efficiency by lactation stage for each PFAS compound.

PFAS	TE <sub>C:S</sub>	TE <sub>B:S</sub>	p-value
PFOA	2.71 (2.44, 3.01)	2.21 (2.01, 2.43)	<0.01
PFNA	2.58 (2.32, 2.87)	2.69 (2.45, 2.95)	0.55
PFHxS	1.35 (1.22, 1.5)	1.21 (1.1, 1.32)	0.09
PFOS	0.81 (0.73, 0.9)	1 (0.91, 1.1)	<0.01

Exposure Category	TE <sub>C:S</sub>	p-value
PFOA		
Background	2.75 (2.05, 3.68)	-
Intermediate	2.61 (2.27, 3.01)	0.75
High	3.08 (2.37, 4.01)	0.56
PFNA		
Background	2.4 (1.79, 3.21)	-
Intermediate	2.65 (2.3, 3.05)	0.54
High	2.54 (1.95, 3.3)	0.78
PFHxS		
Background	1.73 (1.3, 2.32)	-
Intermediate	1.2 (1.04, 1.38)	0.03
High	1.72 (1.32, 2.23)	0.96
PFOS		
Background	0.67 (0.5, 0.9)	-
Intermediate	0.78 (0.67, 0.89)	0.37
High	1.11 (0.86, 1.45)	0.01

**Table S11:** Estimated transfer efficiency (TE, 95% CI) from serum into colostrum (TE<sub>C:S</sub>) by PFAS and exposure level, calculated from a mixed-effects model with an interaction term between PFAS and exposure group (N<sub>participants</sub> = 85 and N<sub>observations</sub> = 340). P-values are for each PFAS compound and are relative to the background exposure group.

Exposure Category	TE <sub>B:S</sub>	p-value
PFOA		
Background	2.42 (2.01, 2.91)	-
Intermediate	2.16 (1.95, 2.39)	0.3
High	2.17 (1.79, 2.62)	0.42
PFNA		
Background	2.99 (2.49, 3.6)	-
Intermediate	2.8 (2.52, 3.1)	0.54
High	2.06 (1.71, 2.5)	0.01
PFHxS		
Background	1.89 (1.57, 2.27)	-
Intermediate	1 (0.9, 1.11)	< 0.01
High	1.42 (1.17, 1.71)	0.03
PFOS		
Background	0.96 (0.79, 1.15)	-
Intermediate	0.98 (0.88, 1.08)	0.84
High	1.15 (0.95, 1.39)	0.18

**Table S12:** Estimated transfer efficiency (TE, 95% CI) from serum into breastmilk (TE<sub>B:S</sub>) by PFAS and exposure level, calculated from a mixed-effects model with an interaction term between PFAS and exposure group ( $N_{participants} = 109$  and  $N_{observations} = 436$ ). P-values are for each PFAS compound and are relative to the background exposure group.

## **Supplemental Figures**



Figure S1: Exposure category cutoffs by serum PFHxS concentrations, illustrated by area (Ronneby: n = 103; Karlshamn: n = 23)



**Figure S2:** Serum PFAS concentrations by area (Ronneby: n = 103; Karlshamn: n = 23)

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	Q4	NA	SUN S	on and	50 A	ON CON	or of a	50	NA.	A.C.	A A A	00 00 00 00 00	000 000	80000	2000	0000	2,4,0°	0,4,0	st s	200 v	0°,0°,0°,0°,0°,0°,0°,0°,0°,0°,0°,0°,0°,0	3 <sup>6°</sup> , 2 <sup>5°</sup> ,	Ser	
PFNA, colostrum	1	0.23	0.36	0.08	0,11	0.24	0.12	0.15	0.23	0.48	0.47	0.47	0.27	0.14	0.31	0.28	0.18	0.26	0.36	0.3	0.31		[	1
PFNA, breastmilk	0.23	1	0.43	-0.1	0.11	0.36	0.12	0.16	0.25	0.12	0.09	0.1	0.07	-0.01	-0.04	0.02	-0.07	-0.07	0.03	-0.02	-0.03			
PFNA, serum	0.36	0.43	1	0.07	0.16	0.75	0.36	0.31	0.64	0.37	0.43	0.52	0.21	0.18	0.25	0.2	0.16	0.2	0.24	0.29	0.29		F /	0.8
PFDA, colostrum	0.08	-0.1	0.07	1	0.25	0.09	0.02	0.03	0.1	0.07	0.06	0.09	0.12	0.17	0.17	0.12	0.2	0.15	0.16	0.18	0.18			
PFDA, breastmilk	0.11	0.11	0.16	0.25	1	0.15	0.16	0.08	0.11	0.11	0.1	0.11	-0.02	0.01	0.12	0.06	0.15	0.13	0.02	0.2	0.1		- '	0.6
PFDA, serum	0.24	0.36	0.75	0.09	0.15	1	0.33	0.39	0.64	0.3	0.27	0.36	0.13	0.08	0.15	0.13	0.07	0.12	0.15	0.23	0.23			
PFUnDA, colostrum	0.12	0.12	0.36	0.02	0.16	0.33	1	0.22	0.24	0.15	0.16	0.17	0.05	-0.03	0.23	0.2	0.05	0.23	0.21	0.07	0.23		- 1	0.4
PFUnDA, breastmilk	0.15	0.16	0.31	0.03	0.08	0.39	0.22	1	0.32	0.14	0.11	0.08	0.24	0.08	0.15	0.23	0.12	0.13	0.23	0.2	0.18			
PFUnDA, serum	0.23	0.25	0.64	0.1	0.11	0.64	0.24	0.32	1	0.27	0.12	0.18	0.17	0.01	0.1	0.12	0.05	0.06	0.15	0.19	0.16		- /	0.2
PFOA, colostrum	0.48	0.12	0.37	0.07	0.11	0.3	0.15	0.14	0.27	1	0.79	0.83	0.65	0.58	0.7	0.72	0.61	0.68	0.77	0.7	0.71			
PFOA, breastmilk	0.47	0.09	0.43	0.06	0.1	0.27	0.16	0.11	0.12	0.79	1	0.87	0.6	0.55	0.74	0.7	0.69	0.71	0.72	0.73	0.72		-	0
PFOA, serum	0.47	0.1	0.52	0.09	0.11	0.36	0.17	0.08	0.18	0.83	0.87	1	0.64	0.57	0.81	0.8	0.74	0.78	0.81	0.79	0.8			
PFHpS, colostrum	0.27	0.07	0.21	0.12	-0.02	0.13	0.05	0.24	0.17	0.65	0.6	0.64	1	0.73	0.75	0.77	0.75	0.75	0.77	0.74	0.72			-0.2
PFHpS, breastmilk	0.14	-0.01	0.18	0.17	0.01	0.08	-0.03	0.08	0.01	0.58	0.55	0.57	0.73	1	0.69	0.7	0.73	0.69	0.68	0.67	0.68			
PFHpS, serum	0.31	-0.04	0.25	0.17	0.12	0.15	0.23	0.15	0.1	0.7	0.74	0.81	0.75	0.69	1	0.94	0.94	0.98	0.94	0.95	0.97		L.	-0.4
PFHxS, colostrum	0.28	0.02	0.2	0.12	0.06	0.13	0.2	0.23	0.12	0.72	0.7	0.8	0.77	0.7	0.94	1	0.93	0.94	0.95	0.94	0.94			••••
PFHxS, breastmilk	0.18	-0.07	0.16	0.2	0.15	0.07	0.05	0.12	0.05	0.61	0.69	0.74	0.75	0.73	0.94	0.93	1	0.96	0.91	0.94	0.92			0.6
PFHxS, serum	0.26	-0.07	0.2	0.15	0.13	0.12	0.23	0.13	0.06	0.68	0.71	0.78	0.75	0.69	0.98	0.94	0.96	1	0.94	0.95	0.97			0.0
PFOS, colostrum	0.36	0.03	0.24	0.16	0.02	0.15	0.21	0.23	0.15	0.77	0.72	0.81	0.77	0.68	0.94	0.95	0.91	0.94	1	0.95	0.96			0.0
PFOS, breastmilk	0.3	-0.02	0.29	0.18	0.2	0.23	0.07	0.2	0.19	0.7	0.73	0.79	0.74	0.67	0.95	0.94	0.94	0.95	0.95	1	0.97		[ -	ŏ.U
PFOS, serum	0.31	-0.03	0.29	0.18	0.1	0.23	0.23	0.18	0.16	0.71	0.72	0.8	0.72	0.68	0.97	0.94	0.92	0.97	0.96	0.97	1			4

Figure S3: Spearman correlations across PFAS and matrices ( $N_{participants}$  = 126 and  $N_{observations}$  = 2240)

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	2×	2	( Q	( dx	R	RX	R	2	2	2	2	2	2	2	NV.	2	2	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	( dx	R	RX	•		
PFNA, colostrum	1	0.24	0.35	0.02	0.1	0.24	0.02	0.13	0.23	0.43	0.48	0.47	0.27	0.14	0.28	0.28	0.18	0.23	0.33	0.29	0.26			1
PFNA, breastmilk	0.24	1	0.47	-0.16	0.07	0.4	0.05	0.19	0.25	0.09	0.08	0.12	0.06	-0.02	-0.07	-0.01	-0.1	-0.11	0	-0.04	-0.08			
PFNA, serum	0.35	0.47	1	0	0.15	0.77	0.38	0.25	0.64	0.38	0.43	0.53	0.24	0.19	0.22	0.25	0.15	0.17	0.26	0.27	0.25		-	0.8
PFDA, colostrum	0.02	-0.16	0	1	0.3	0.03	0.01	0.02	0.06	0.02	0.06	0.05	0.11	0.19	0.15	0.11	0.23	0.14	0.11	0.2	0.17			
PFDA, breastmilk	0.1	0.07	0.15	0.3	1	0.15	0.2	0.08	0.14	0.1	0.07	0.08	0.01	0	0.1	0.11	0.14	0.1	0.06	0.15	0.06		-	0.6
PFDA, serum	0.24	0.4	0.77	0.03	0.15	1	0.36	0.34	0.67	0.32	0.25	0.34	0.17	0.05	0.1	0.18	0.02	0.06	0.18	0.19	0.18			
PFUnDA, colostrum	0.02	0.05	0.38	0.01	0.2	0.36	1	0.24	0.3	0.04	0.07	0.05	-0.01	-0.09	0.12	0.12	-0.01	0.11	0.1	0.03	0.12		-	0.4
PFUnDA, breastmilk	0.13	0.19	0.25	0.02	0.08	0.34	0.24	1	0.34	0.09	-0.01	-0.05	0.19	0.03	0.07	0.16	0.02	0.03	0.17	0.1	0.06			
PFUnDA, serum	0.23	0.25	0.64	0.06	0.14	0.67	0.3	0.34	1	0.29	0.13	0.19	0.23	0.02	0.1	0.19	0.05	0.06	0.2	0.19	0.15		F	0.2
PFOA, colostrum	0.43	0.09	0.38	0.02	0.1	0.32	0.04	0.09	0.29	1	0.8	0.85	0.68	0.59	0.69	0.75	0.63	0.69	0.77	0.71	0.7			
PFOA, breastmilk	0.48	0.08	0.43	0.06	0.07	0.25	0.07	-0.01	0.13	0.8	1	0.88	0.61	0.57	0.71	0.71	0.68	0.69	0.71	0.73	0.69		-	0
PFOA, serum	0.47	0.12	0.53	0.05	0.08	0.34	0.05	-0.05	0.19	0.85	0.88	1	0.64	0.6	0.78	0.8	0.73	0.75	0.82	0.77	0.77			
PFHpS, colostrum	0.27	0.06	0.24	0.11	0.01	0.17	-0.01	0.19	0.23	0.68	0.61	0.64	1	0.72	0.76	0.78	0.77	0.77	0.79	0.75	0.73			-0.2
PFHpS, breastmilk	0.14	-0.02	0.19	0.19	0	0.05	-0.09	0.03	0.02	0.59	0.57	0.6	0.72	1	0.74	0.69	0.75	0.74	0.68	0.72	0.71			
PFHpS, serum	0.28	-0.07	0.22	0.15	0.1	0.1	0.12	0.07	0.1	0.69	0.71	0.78	0.76	0.74	1	0.95	0.96	0.98	0.95	0.96	0.96			-0.4
PFHxS, colostrum	0.28	-0.01	0.25	0.11	0.11	0.18	0.12	0.16	0.19	0.75	0.71	0.8	0.78	0.69	0.95	1	0.94	0.95	0.97	0.94	0.93			
PFHxS, breastmilk	0.18	-0.1	0.15	0.23	0.14	0.02	-0.01	0.02	0.05	0.63	0.68	0.73	0.77	0.75	0.96	0.94	1	0.97	0.92	0.95	0.93		L	-0.6
PFHxS, serum	0.23	-0.11	0.17	0.14	0.1	0.06	0.11	0.03	0.06	0.69	0.69	0.75	0.77	0.74	0.98	0.95	0.97	1	0.95	0.95	0.96			0.0
PFOS, colostrum	0.33	0	0.26	0.11	0.06	0.18	0.1	0.17	0.2	0.77	0.71	0.82	0.79	0.68	0.95	0.97	0.92	0.95	1	0.96	0.95			0.0
PFOS, breastmilk	0.29	-0.04	0.27	0.2	0.15	0.19	0.03	0.1	0.19	0.71	0.73	0.77	0.75	0.72	0.96	0.94	0.95	0.95	0.96	1	0.97			-0.0
PFOS, serum	0.26	-0.08	0.25	0.17	0.06	0.18	0.12	0.06	0.15	0.7	0.69	0.77	0.73	0.71	0.96	0.93	0.93	0.96	0.95	0.97	1			

**Figure S4:** Spearman correlations across PFAS and matrices, limited to participants in the intermediate and high exposure groups ( $N_{participants} = 101$  and  $N_{observations} = 1827$ )

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	PFT	A. Dro	A pfr	PH. PH.	INDA.	DA. Ptc	DA. PHO	DA. BEL	45,56 45,56	SS OL	DS Dro	S, SOL
PFNA, breastmilk	1	0.24	0.08	0.2	0.32	0.12	0.03	-0.16	0.22	0	0.03	1
PFNA, serum	0.24	1	0.51	0.62	0.39	0.34	0.54	0.16	0.53	0.34	0.68	- 0.8
PFDA, serum	0.08	0.51	1	0.47	0.5	0.2	0.35	-0.2	0.72	0.32	0.37	- 0.6
PFUnDA, serum	0.2	0.62	0.47	1	0.48	-0.13	0.26	0.08	0.6	0.27	0.73	- 0.4
PFOA, colostrum	0.32	0.39	0.5	0.48	1	0.42	0.29	0.39	0.53	0.59	0.52	- 0.2
PFOA, breastmilk	0.12	0.34	0.2	-0.13	0.42	1	0.52	0.07	0.6	0.22	0.21	- 0
PFOA, serum	0.03	0.54	0.35	0.26	0.29	0.52	1	0.25	0.12	0.43	0.46	0.2
PFHxS, serum	-0.16	0.16	-0.2	0.08	0.39	0.07	0.25	1	0.19	0.29	0.37	0.4
PFOS, colostrum	0.22	0.53	0.72	0.6	0.53	0.6	0.12	0.19	1	0.49	0.68	0.0
PFOS, breastmilk	0	0.34	0.32	0.27	0.59	0.22	0.43	0.29	0.49	1	0.56	0 8
PFOS, serum	0.03	0.68	0.37	0.73	0.52	0.21	0.46	0.37	0.68	0.56	1	

**Figure S5:** Spearman correlations across PFAS and matrices, limited to participants in the background exposure group ( $N_{participants} = 25$  and  $N_{observations} = 239$ ). Because of the small sample size, this correlation plot excludes PFAS measurements where the majority of measurements were less than the LOQ.