

Supplementary Materials

To what extent are wastewater treatment systems a gateway for microplastic particles in the aquatic and terrestrial environments?

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Supplementary Figure 1. Pictures of the sampling device designed and used within this study (A) and operational at GR-STP raw water inlet (B).

Supplementary Table 1. Sampling sites, code, time and sampled volumes of inlet and outlet water at Nord Jæren (NJ) and Grødalund (GR)

Sample #	Sampling site	Sampling code	Sampling time	Sample type	Filtered volume (L)
1	NJ-STP Inlet	NJ In-S17-1	March 2017	Composite	56+51
2	NJ-STP Inlet	NJ In-S17-2	March 2017	Composite	51+54
3	NJ-STP Inlet	NJ In-S17-3	March 2017	Composite	46+48
4	NJ-STP Outlet	NJ Out-S17-1	March 2017	Composite	101+104
5	NJ-STP Outlet	NJ Out-S17-2	March 2017	Composite	107+101
6	NJ-STP Outlet	NJ Out-S17-3	March 2017	Composite	100+106
7	GR-STP Inlet	GR In-S17-1	March 2017	Composite	44+36
8	GR-STP Inlet	GR In-S17-2	March 2017	Composite	47+41
9	GR-STP Inlet	GR In-S17-3	March 2017	Composite	45+47
10	GR-STP Outlet	GR Out-S17-1	March 2017	Composite	101+100
11	GR-STP Outlet	GR Out-S17-2	March 2017	Composite	100+100
12	GR-STP Outlet	GR Out-S17-3	March 2017	Composite	102+101
13	NJ-STP Inlet	NJ In-Su17-1	July 2017	Composite	56+48
14	NJ-STP Inlet	NJ In-Su17-2	July 2017	Composite	51+51
15	NJ-STP Inlet	NJ In-Su17-3	July 2017	Composite	38+48
16	NJ-STP Outlet	NJ Out-Su17-1	July 2017	Composite	104+101
17	NJ-STP Outlet	NJ Out-Su17-2	July 2017	Composite	100+101
18	NJ-STP Outlet	NJ Out-Su17-3	July 2017	Composite	102+103
19	GR-STP Inlet	GR In-Su17-1	July 2017	Composite	45+48
20	GR-STP Inlet	GR In-SuD17-2	July 2017	Composite	32+41
21	GR-STP Inlet	GR In-Su17-3	July 2017	Composite	46+45
22	GR-STP Outlet	GR Out-Su17-1	July 2017	Composite	105+102
23	GR-STP Outlet	GR Out-Su17-2	July 2017	Composite	101+103
24	GR-STP Outlet	GR Out-Su17-3	July 2017	Composite	102+99

Supplementary Table 2. Selected ion compounds from TMAH pyrograms chosen as indicators for polymer specific qualitative and quantitative analysis. Retention index was calculated according to van Den Dool *et al.* (1963)^[1]

Polymer of interest	Molecular ion (m/z)	selected indicator ion (m/z)	Decomposition product	RI	LOQ (µg)
PP	210	69	2,4,6,8-tetramethyl-1-undecene	1306	0.5
			3-butene-1,3-diyl dibenzene	871/1672	0.8
PS	104/208	104/208	(styrene dimer)/bi-2,4,6 - cycloheptatriene - 1- yl		
PVC	117/142	117/142	Benzene 1-ethenyl - 2 methyl/Benzo cycloheptatriene	1024/1294	0.9
PET	194	163	dimethyl terephthalate	1504	1.0
PC	242	149	p-methoxy-tert-butylbenzene	1240	1.1
PMMA	100	100	methyl methacrylate	775	1.0
PA-66	113	84	hexene	803	0.8
PE	280	83	1-tetradecene (C14)	1392	0.5
PE-d4 (deuterated)	112/224	112/224	3-butene-1,3-diyl dibenzene	871/1672	0.8
			(styrene dimer)/bi-2,4,6 - cycloheptatriene - 1- yl		

Supplementary Table 3. Recoveries study performed to test the efficiency of the microplastics water sampling device

Test #	Flown Water (L)	Spiked PE	Recovered	Recovery	Spiked PE	Recovered	Recovery rate 10 µm cut off (%)
		fraction 900 µm - sieve 300 µm	PE fraction 900 µm- sieve 300 µm	rate 300 µm cut off (%)	fraction 50 µm- sieve 10 µm	PE fraction 50 µm- sieve 10 µm	
1	999	201	199	99,0	51	48	94,1
2	1003	216	206	95,4	52,3	51,2	97,9
3	1001	207	201	97,1	45,9	40,1	87,4
4	1002	209	199	95,2	50,1	45,1	90,0
5	1007	211	202	95,7	48,7	40,7	83,6

REFERENCES

1. van Den Dool H; Kratz PD. A generalization of the retention index system including linear temperature programmed gas-liquid partition chromatography. *J Chromatogr A* 1963;11:463-71.[DOI:10.1016/S0021-9673(01)80947-X]