Supporting Information

Ferrihydrite coating reduces microplastic induced soil water repellency

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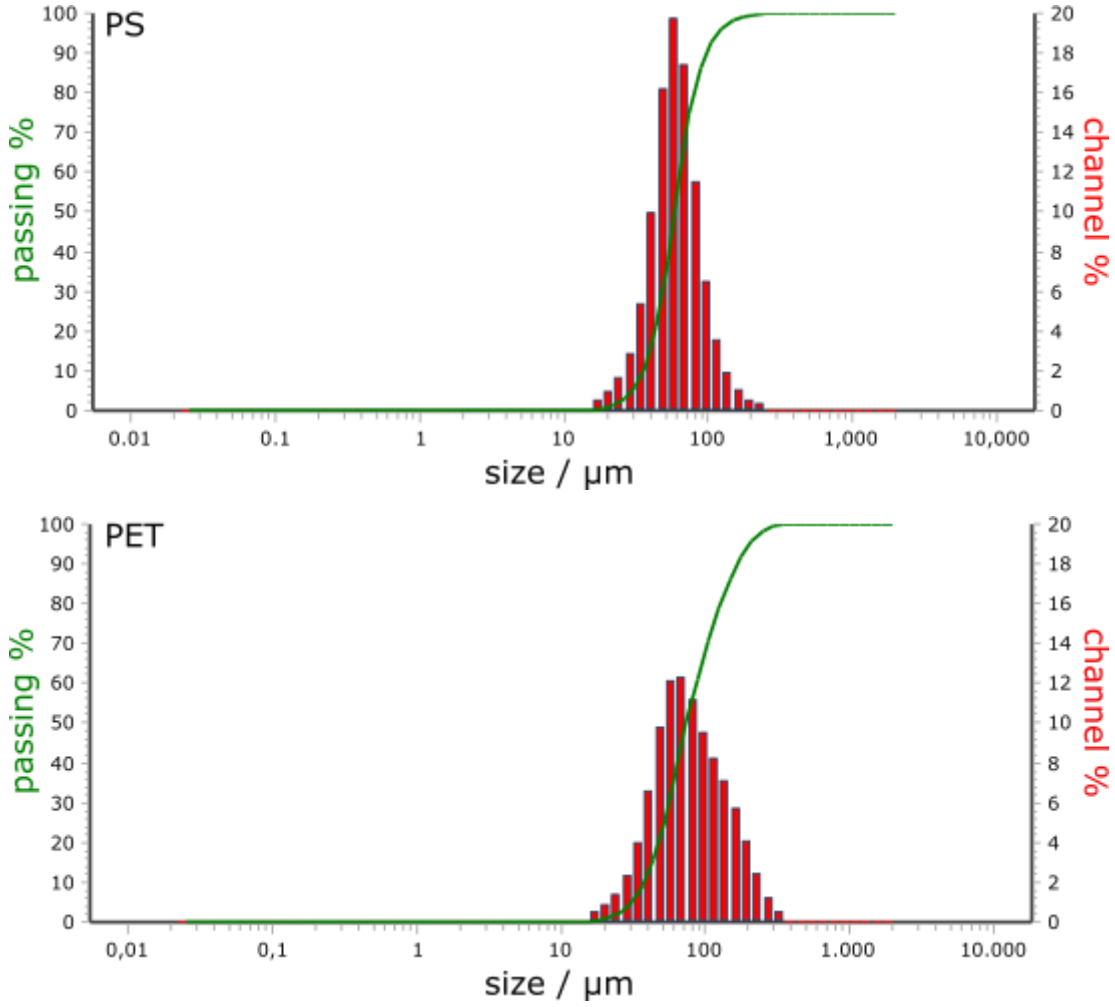

Figure S1. Size distribution of PS and PET particles.

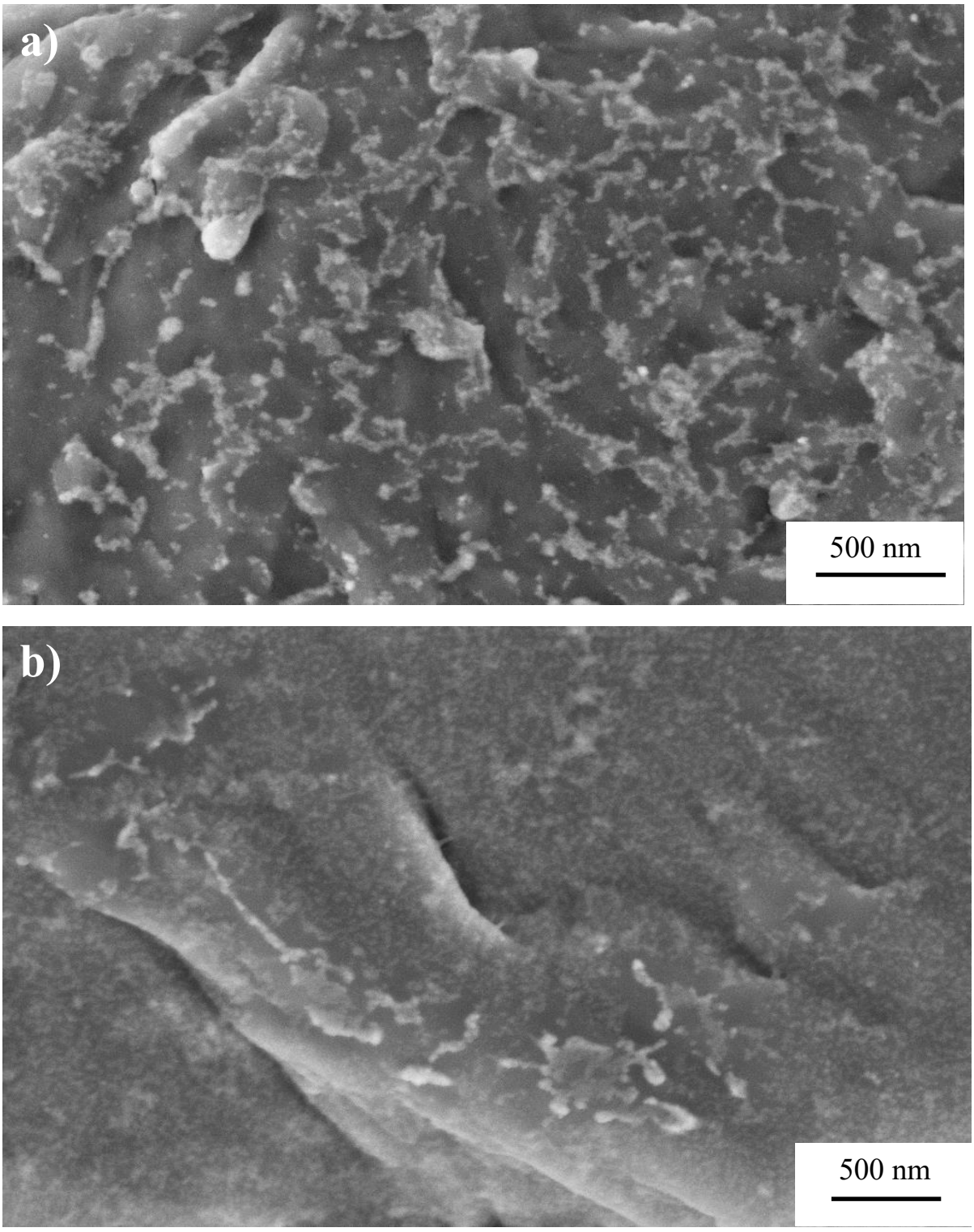

Figure S2. SEM images of coated PS (a) and coated PET (b). Both types of MP have a thin layer of ferrihydrite (light areas) on the surface. For PET the coating of the surface with ferrihydrite seems more evenly distributed compared to PS where larger areas of the PS surface without a coating remain.

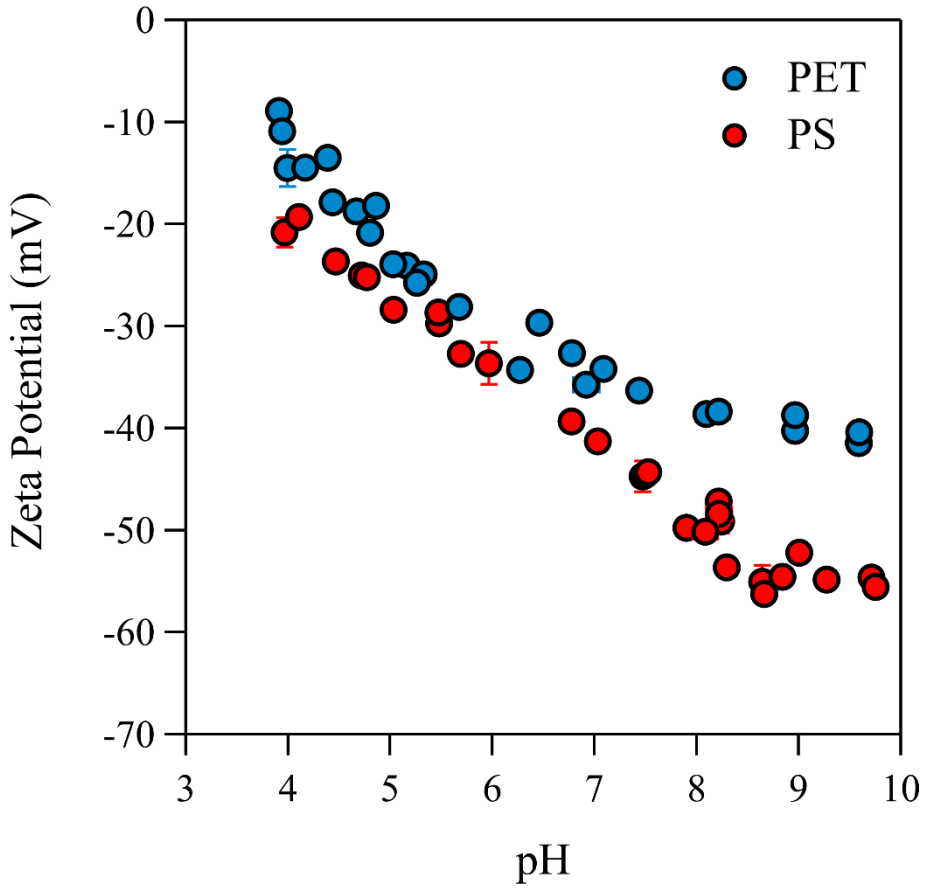

Figure S3. Zeta potentials of PS and PET as functions of the pH value at a constant ionic strength of 10 mM.

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Table S1. Results of single drop contact angle (CA) of pristine and coated MP.

	pristine PS	**pristine PET**	**coated PS**	**coated PET**
Single drop CA (°)	138.06	128.44	133.82	101.60
	144.15	126.73	124.82	100.64
	146.03	124.27	133.04	99.36
	143.18	124.28	124.80	100.95
	150.63	115.49	123.36	102.43
	140.86	128.17	124.38	109.94
	146.07	120.27	126.65	103.54
	143.36	123.88	125.66	95.58
	144.84	119.98	123.45	101.96
	141.48	125.66	130.54	95.10
	142.12	124.70	127.16	107.25
mean CA (°)	143.71	123.81	127.06	101.67
STD (°)	3.29	3.87	3.74	4.37
Significance	A	B	B	C

Table S2. BET surface area of pristine PET and PS. The amounts of iron adsorbed on the MP surface per mass MP and per surface area of MP.

		Iron adsorbed on MP surface per mass MP		Iron adsorbed on MP surface per surface area of MP	
	BET surface area (m^2/g)	**Mean (µmol Fe/g MP)**	**STD (µmol Fe/g MP)**	**Mean (µmol Fe/m^2 MP)**	**STD (µmol Fe/m^2 MP)**
PS	1.29	26.25	1.02	20.31	0.79
PET	0.34	29.72	0.64	87.40	1.88

Table S3. Mean water saturation values of all samples.

	Water Saturation (volume water / volume pore space) [-]		
	mean	**STD**	**Significance**
Capillary rise with water			
Control	0.9291	0.0228	A
PS	0.052	0.0712	B
PS coated	0.0906	0.0741	B
PET	0.1342	0.0954	B
PET coated	0.8615	0.0753	A
Capillary rise with Fh10			
Control	0.9925	0.0211	A
PS water	0.052	0.0712	B
PS Fh10 1st	0.1076	0.1057	BC
PS Fh10 2nd	0.1280	0.1128	BC
PET water	0.1342	0.0954	BC
PET Fh10 1st	0.1670	0.15	BC
PET Fh10 2nd	0.2479	0.1868	C
Capillary rise with Fh100			
Control	0.9683	0.028	A
PS water	0.052	0.0712	B
PS Fh100 1st	0.0659	0.0765	B
PS Fh100 2nd	0.0535	0.062	B
PET water	0.1342	0.0954	BC
PET Fh100 1st	0.1579	0.1179	BC
PET Fh100 2nd	0.2112	0.1009	C