

Supplementary Materials Outdoor Microplastic Analysis Using Inlet Filters from an NOx Regulatory Air Quality Monitoring Device

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Supplementary Method SM1. Calculation for NOx filter surface area to meter squared.

Diameter of the filter is 47 mm, area of a circle in terms of **diameter**: $\text{Area} = \pi \cdot (d/2)^2 = 3.14 \cdot (47/2)^2 = 3.14 \cdot (23.5)^2 = 1735 \text{ square mm} = 0.001735 \text{ square meters (m}^2\text{)}$, $1/0.001735 = 576.37$ multiplier to get to m squared values – rounded to 576.

Supplementary method SM2: Calculation of LOD/LOQ for each polymer.

Example (using nylon):

[A] = MP polymer quantity in analysed proportion of a sample A = 10

[B] = MP polymer quantity in whole sample $([A] \cdot 2) B = 20$

[C] = Mean MP polymer quantity in blanks $C = 3.49 \pm 0.4$

[D] = Blank correction $([B] - [C]) D = 16.5$ (10-3.5)

[LOD] = $3 \cdot \text{SD of [C]}$ or 1.1 (whichever value is higher) [LOD] = 1.2 (3*0.4)

[LOQ] = $10 \cdot \text{SD of [C]}$ or 3.3 (whichever value is higher) [LOQ] = 4 (10*0.4)

Blank corrected results above the LOQ will be included in final concentrations [D] > LOQ ∴ included in results, for this nylon example [D]=16.5 which is >LOD and LOQ values.

Table S1. Showing all identified polymers within NOx inlet filter samples and accounting for the same polymer if identified in controls. Additional columns present data used to determine Limit of Detection and Limit of Quantification values. Abbreviations; PA, poly (acetal); PB, poly(butadiene); PC, polycarbonate; PCS, Poly(4-chlorostyrene:styrene); PE, polyethylene; PAS, poly (acrylate:styrene); PES, polyester; PET, polyethylene terephthalate; PP, polypropylene; PS, polystyrene; PTFE, polytetrafluoroethylene, PVAE, poly (vinyl acetate:ethylene).

Polymer and NOx filter sample no.	Polymer quantity in samples (A)	Mean polymer quantity in controls \pm SD (B)	Blank correction A-B (C)	Limit of Detection $3 \cdot \text{SD of B OR } 1.1/A$ (whichever is higher) (LoD)	Limit of Quantification $10 \cdot \text{SD of B OR } 3.3/A$ (whichever is higher) (LoQ)
Nylon					
1	16	0.7 ± 0.7	15.3	2.1	21
2	20		19.3		
3	8		7.3		
4	58		57.3		
5	10		9.3		
6	26		25.3		
PP					
1	6	0 ± 0	6	1.1	3.3

2	78		78		
3	2		2		
4	4		4		
5	2		2		
6	2		2		
PE					
1	12	0.4 ± 0.7	11.6	2.1	7
2	30		29.6		
3	4		3.6		
4	12		11.6		
6	4		3.6		
PTFE					
1	2	0.1 ± 0.3	1.9	1.1	3.3
2	2		1.9		
4	2		1.9		
PS					
1	4	0 ± 0	4	1.1	3.3
2	4		4		
3	10		10		
4	10		10		
6	2		2		
Hydrocarbon resin					
1	2	0.3 ± 0.7	1.7	2.1	7
2	2		1.7		
5	6		5.3		
6	2		1.7		
Alkyd resin					
1	4	0.1 ± 0.3	3.9	1.1	3.3
3	2		1.9		
4	4		3.9		
PVS					
1	2	0 ± 0	2	1.1	3.3
2	4		4		
PET					
1	2	0.1 ± 0.3	1.9	1.1	3.3
2	2		1.9		
4	2		1.9		
PCS					
2	2	0 ± 0	2	1.1	3.3
4	2		2		
5	2		2		
PB					

1	2	0 ± 0	2	1.1	3.3
2	2		2		
PA					
1	2	0 ± 0	2	1.1	3.3
PC					
2	2	0 ± 0	2	1.1	3.3
PES					
5	2	0.2 ± 0.4	1.8	1.1	3.3