

Supporting Information

Assessment of background plastics contamination from human respiratory tract sample collection vessels.

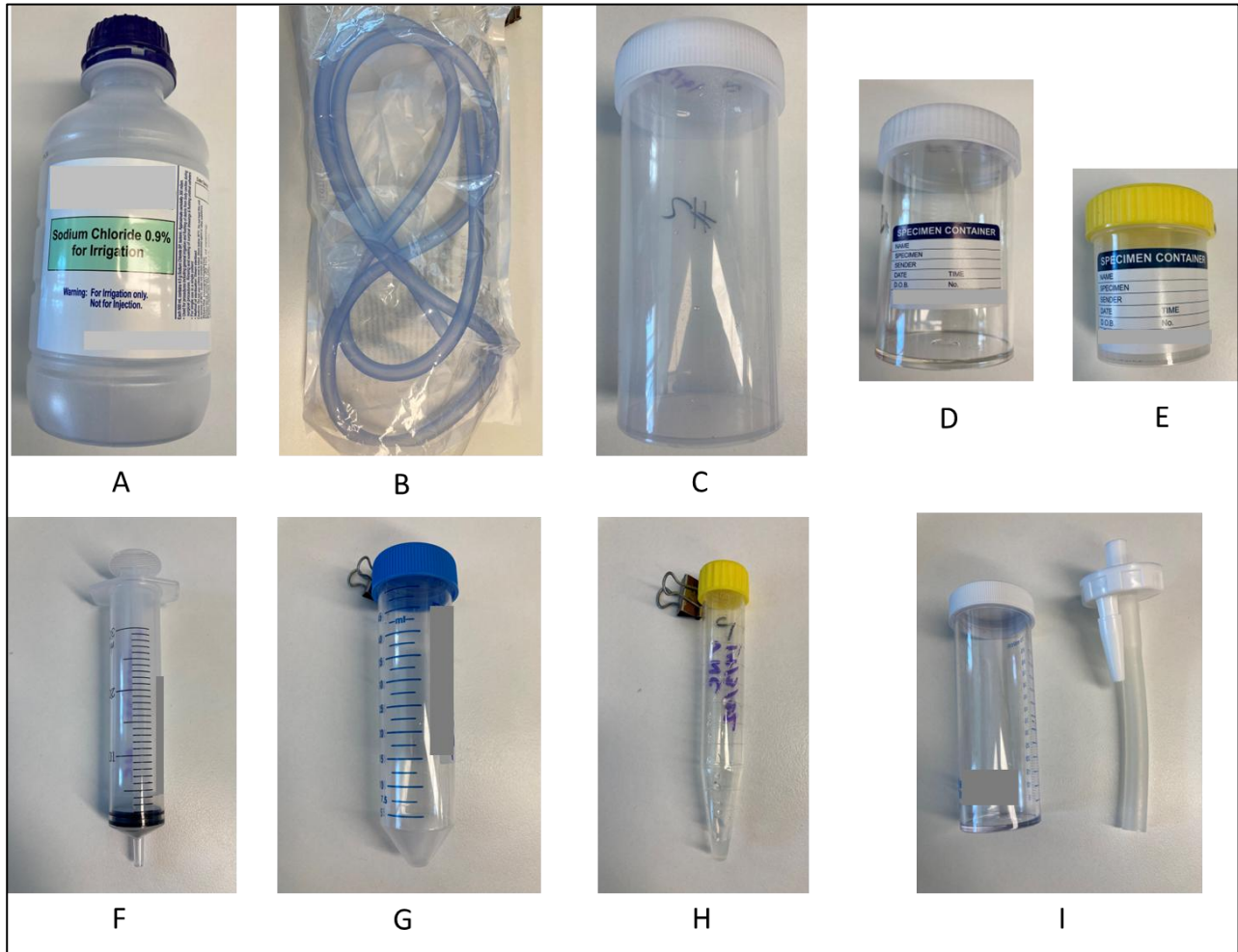


Figure S1: Photos of plastic collection equipment tested. A = 500 mL empty saline solution container (SSC, n=1); B = 1.5m suction tube (ST, n=1); C = large container (LG, n=2); D = 250 mL specimen container (SPC, n=3); E = small container (SMC, n=3); F = syringes (SY1-SY3, n=6); G = 50 mL falcon tube (FT2, n=2); H = 10 mL falcon tube (FT1, n=2); I = specimen trap (SPT, n=1).

Table S1. Conditions for Pyrolysis-GCMS measurements

Apparatus	Parameters	Settings
Micro-furnace Pyrolyzer (double-shot analysis) EGA/PY-3030D	First-shot furnace temperature (thermal desorption) Second-shot furnace temperature (pyrolysis) Interface temperature Pyrolysis time	Ramped; 100 °C → 20 °C /min → 300 °C (1 min) 650 °C 320 °C 12 s (0.20 min)
GC	Column Injector port temperature Column oven temperature program Injector mode Carrier gas	Ultra-Alloy® 5 capillary column (30 m, 0.25 mm I.D., 0.25 µm film thickness) (Frontier Lab supplied by Shimadzu) 300 °C 40 °C (2 min) → (20 °C /min) → 320 °C (14 min) Split/split less (split 50:1) Helium, 1.0 mL/min, constant linear velocity
MS	Ion source temperature Ionization energy Scan range	250 °C Electron ionization (EI); 70 eV 40 to 600 <i>m/z</i>

Table S2. List of plastic and their respective specific ions used for quantification

Plastic	Pyrolysis product	Indicator ions (<i>m/z</i>)
PP	<i>2,4-dimethyl-1-heptene</i>	70, 83, 126
PS	3-butene-1,3-diylidibenzene (styrene dimer)* <i>5-hexene-1,3,5-triyltribenzene (styrene trimer)</i>	91 , 130, 193, 208 91 , 117, 194, 312
PMMA	<i>Methyl methacrylate</i>	69, 100 , 89
PET	Benzoic acid* <i>Vinyl benzoate</i>	105, 122, 77 105, 77, 148, 51
PC	<i>Bisphenol A (BA)</i>	213, 119, 91, 165, 228
PE	alkadiene (C ₂₁)* <i>n-alkene (C_{10, 12, 14})</i>	82 , 96, 69 83 , 111, 140
PVC	Benzene* <i>Naphthalene</i>	78, 74, 52 128 , 132, 146, 116, 102

Internal standards		
Polystyrene-d5	<i>Styrene monomer</i>	109, 82, 54, 107

*Indicator ions used for screening only and for quality control, Italics and bold mass used for calibration and quantification, m/z = mass to charge ratio, polystyrene (PS), polycarbonate (PC), poly-(methyl methacrylate) (PMMA), polypropylene (PP), polyethylene terephthalate (PET), polyethylene (PE) and polyvinyl chloride (PVC)

Table S3. Concentrations of target polymers detected in process blanks and calculated limits of detection (LODs). Where an analyte was not detected, "< instrument detection limit" is listed.

	PE	PP	PET	PS	PMMA	PVC	PC
Process Blk #1	0.89	<0.1	<0.1	<0.05	<0.01	0.46	0.001
Process Blk #2	1.6	<0.1	<0.1	<0.05	<0.01	0.66	<0.001
Process Blk #3	1.0	<0.1	<0.1	<0.05	<0.01	1.04	<0.001
Process Blk #4	1.1	<0.1	<0.1	<0.05	<0.01	0.93	0.001
Average	1.1	<0.1	<0.1	<0.05	<0.01	0.77	0.001
SD	0.32	<0.1	<0.1	<0.05	<0.01	0.26	0.0003
LOD	2.1	<0.1	<0.1	<0.05	<0.01	1.6	0.002

Table S4: Concentrations of PE calculated from different monitored pyrolysis products and calculated ratios of pyrolysis products

	Concentration ($\mu\text{g}/\text{sample}$)				Ratio		
	C10	C12	C14	C21	C10/C12	C10/C14	C10/C21
<i>QC spike</i>	2.7	2.5	2.3	1.2	1.1	1.2	2.3
30mL syringe #1 (SY2)	2.8	2.7	2.7	1.2	1.0	1.1	2.4
Specimen container 250mL #1 (SPC)	2.0	<3.2	<3.8	2.1	N/A	N/A	1.0
Specimen container 250mL #2 (SPC)	2.7	<3.2	<3.8	4.3	N/A	N/A	0.6
Large container #2 (LG)	3.0	<3.2	<3.8	<0.1	N/A	N/A	N/A
Large container #1 (LG)	3.0	<3.2	<3.8	3.8	N/A	N/A	0.8
Urine container #1 (UC)	5.5	3.6	4.1	7.6	1.6	1.3	0.7
Urine container #2 (UC)	1.5	<3.2	<3.8	2.9	N/A	N/A	0.5
Urine container #3 (UC)	2.7	3.1	4.2	2.4	0.9	0.7	1.1

10mL falcon tube #1 (FT1)	13	23	32	0.23	0.57	0.41	55
10mL falcon tube #2 (FT1)	16	29	41	0.42	0.56	0.40	39