Electronic Supplementary Material (ESI) for Environmental Science: Processes & Impacts. This journal is © The Royal Society of Chemistry 2021

## Supplementary Information

	Winter	Summer
Male	95	104
Under 18	32	35
18-30	16	20
31-45	25	25
46-60	17	17
61-75	5	7
Female	109	100
Under 18	34	33
18-30	18	14
31-45	30	26
46-60	18	17
61-75	9	10
Gender not disclosed	1	0
18-30	1	0

Table A: Demographic information of participants by season

	Winter	Summer	
Property Era			
Victorian, or earlier	21	23	
1920-1930	6	5	
1940-1950	8	13	
1960-1970	36	38	
1980-2000	45	44	
2000+	64	57	
Property Type			
Detached	91	85	
Semi-Detached	55	66	
Studio Apartment	6	6	
Terraced	28	23	
Number of Residents			
1	9	9	
2	42	46	
3	27	26	
4	69	68	
5+	33	31	
Number of Bedrooms			
2	29	29	
3	87	82	
4	38	45	
5+	26	24	

Table C: Additional questions posed in the participant household survey

Additional Household Questions					
Built-in Garage	Yes				
	No				
Glazing	Single				
	Double or triple				
Heating Method	Solid fuel; wood stove				
	Solid fuel; coal				
	Solid fuel; log burner				
	Solid fuel:				
	other - please specify				
	Solid fuel:				
	gas central heating				
	Solid fuel;				
	electric central heating				
	Solid fuel;				
	oil central heating				
	Solid fuel;				
	LPG central heating				
Cooking Method	Gas				
	Electric				
	Solid fuel				
	Other; please specify				
Presence of Smokers	Yes				
	No				
Presence of Cut Flowers	Yes				
	No				

Table D: Product-use log provided to study households. Participants were asked to complete the log each day of the study period and an average was taken to identity mean product usage for each household, per study period

	Product Type	Uses					
Day 1	Aftershave/Perfume	n					
	Air freshener	n					
	Antiperspirant Deodorant	n					
	Candles	n					
	Cleaning Sprays	n					
	Furniture Polish	n					
	Hairspray	n					
	Insecticide-Fly Sprays	n					
	Paint	n					
	Plug-ins						
	Sealant-Mastics	n					
Day 2	Aftershave/Perfume	n					
		n					
Day 3	Aftershave/Perfume	n					
		n					

Table E: Descriptive statistics for product type and frequency of use over a standard 72-hour participant recording period. Data drawn from 60 homes, including both summer and winter campaigns

	Winter			Summer				
	Number of uses in 72 hrs			Number of uses in 72 hrs				
	Range	Median	IQR	SD	Range	Median	IQR	SD
Aftershave/ Perfume	0 - 37	5	3	4.33	0 - 34	5	4	3.71
Air freshener	0 - 26	1	3	3.72	0 - 23	1	3	3.57
Antiperspirant/Deodorant	1 - 22	7	4	4.10	1 - 41	8	6	4.75
Candles	0 - 8	0	2	1.66	0 - 33	0	1	2.80
Cleaning Sprays	0 - 22	3	5	4.07	0 - 35	3	5	5.60
Furniture Polish	0 - 11	0	1	1.55	0 - 9	0	1	1.29
Glue	0 - 3	0	0	0.485	0 - 3	0	0	0.42
Hairspray	0 - 14	0	3	2.33	0 - 14	1	3	2.00
Insecticide-Fly Spray	0 - 3	0	0	0.223	0 - 5	0	0	1.05
Paint	0 - 5	0	0	0.674	0 - 3	0	0	0.50

Plug-in	0 - 36	0	1	4.67	0 - 30	0	2	3.95
Sealant/ Mastic	0 - 3	0	0	0.319	0 - 9	0	0	0.69



Figure A: Sampling flow rate for the 72 hour integrated whole air sampling system used in the homes studied in Ashford UK. 80% of the sample collected at a constant inlet flow rate over the first 48 hours, and a small remainder of fill over the next 24 hours when the canister approached equilibrium with atmospheric pressure. This creates some sampling bias towards the first two days of the sample, although diary information was recorded over the full 72 hours, with the final few hours of lower sampling flows corresponding to overnight and early morning.



Figure B: GC-FID chromatogram for NPL 30 NMHC calibration gas at 4 ppb per VOC



Figure C: GC-MS chromatogram for custom-blended calibration gas including monoterpenes and oxygenates



Figure D: Total VOC concentration ranges by season. Box size is defined by the 25<sup>th</sup> and 75<sup>th</sup> percentiles of the data. The middle line of the boxes defines the median value. No greater than 1.5 times the interquartile range from both percentiles defines the whiskers. Outliers are plotted beyond the whiskers. Outliers outside the 10<sup>th</sup> and 90<sup>th</sup> percentiles are not included in the plot, but are included in calculations used to define box plot parameters



Figure E: Relationships between individual VOC concentrations and the total number of recorded uses of all VOC-containing products in each sampling period. The red lines represent regression lines generated by a linear model