APPENDIX AVAILABLE ON REQUEST

Research Report 143

Measurement and Modeling of Exposure to Selected Air Toxics for Health Effects Studies and Verification by Biomarkers

Roy M. Harrison et al.

Appendix 14. Other Indoors Microenvironment Statistics Summary

Note: Appendices Available on the Web appear in a different order than in the original Investigators' Report. HEI has not changed these documents.

Correspondence may be addressed to Dr. Roy Harrison, University of Birmingham, Division of Environmental Health and Risk Management, Edgbaston Park Road School of Geography, Earth, and Environmental Sciences, Birmingham B15 2TT, United Kingdom, r.m.harrison@bham.ac.uk

Although this document was produced with partial funding by the United States Environmental Protection Agency under Assistance Award CR–83234701 to the Health Effects Institute, it has not been subjected to the Agency's peer and administrative review and therefore may not necessarily reflect the views of the Agency, and no official endorsement by it should be inferred. The contents of this document also have not been reviewed by private party institutions, including those that support the Health Effects Institute; therefore, it may not reflect the views or policies of these parties, and no endorsement by them should be inferred.

This document was reviewed by the HEI Health Review Committee
but did not undergo the HEI scientific editing and production process.

APPENDIX 14: OTHER INDOORS MICROENVIRONMENT STATISTICS SUMMARY

Table A14.1. Characterisation of VOC other indoors microenvironment concentrations by strata in pubs

	N	Min	25%	50%	75%	Max	Mean	SD	LB[a]	UB[b]	GM	GSD	GLB[c]	GUB[d]
All seasons														
n-Hexane	10	0.24	0.54	0.83	2.48	3.28	1.41	1.12	0.55	2.27	1.03	2.44	0.52	2.03
Benzene	10	1.70	1.17	3.47	8.93	14.8	5.11	4.93	1.32	8.90	3.15	3.02	1.35	7.35
Toluene	10	0.24	6.24	8.46	23.0	48.0	15.0	15.1	3.46	26.6	9.40	2.98	4.06	21.7
Ethylbenzene	10	0.24	0.88	1.29	2.63	10.6	2.44	3.21	-	4.91	1.39	3.01	0.60	3.25
p-Xylene	10	0.15	0.62	1.10	2.15	7.37	1.84	2.22	0.13	3.55	1.06	3.18	0.44	2.57
m-Xylene	10	0.39	1.83	3.04	7.04	29.7	6.47	9.13	-	13.4	3.20	3.65	1.18	8.68
Pyridine	10	0.37	0.85	2.45	8.04	10.0	3.96	3.75	1.08	6.85	2.27	3.45	0.87	5.87
o-Xylene	10	0.20	0.78	1.36	2.06	9.54	2.22	2.85	0.02	4.41	1.30	2.99	0.56	3.01
1,3,5-Trimethylbenzene	10	0.06	0.17	0.35	0.57	1.69	0.50	0.51	0.11	0.90	0.32	2.95	0.14	0.73
Styrene	10	0.22	0.54	1.01	2.86	3.89	1.54	1.35	0.50	2.59	1.00	2.89	0.44	2.27
p-Isopropyltoluene	10	0.20	0.30	0.87	1.04	2.35	0.95	0.63	0.47	1.43	0.78	2.01	0.46	1.34
1,2,4-Trimethylbenzene	10	0.29	0.78	1.40	2.01	6.82	1.96	2.02	0.41	3.51	1.31	2.62	0.62	2.75
3-Ethenylpyridine	10	0.72	2.05	4.27	8.92	10.3	5.05	3.78	2.14	7.96	3.56	2.68	1.67	7.58
Naphthalene	10	0.14	0.29	0.41	0.90	1.37	0.58	0.42	0.26	0.90	0.45	2.16	0.25	0.25
1,3-Butadiene	10	0.00	0.31	3.56	9.39	17.3	3.85	4.19	2.14	7.06	0.65	31.5	0.05	9.18
Summer														
n-Hexane	5	0.24	0.28	0.54	0.77	0.81	0.53	0.25	0.13	0.93	0.48	1.72	0.20	1.13
Benzene	5	1.70	0.86	1.20	2.62	3.35	1.20	0.52	0.37	2.04	1.12	1.58	0.54	2.30
Toluene	5	0.24	2.02	7.55	8.46	8.63	4.96	3.43	-	10.4	3.97	2.24	1.10	14.3
Ethylbenzene	5	0.24	0.35	1.02	1.29	1.36	0.77	0.51	-	1.58	0.63	2.20	0.18	2.20
p-Xylene	5	0.15	0.22	0.77	1.10	1.28	0.62	0.51	-	1.43	0.46	2.59	0.10	2.08
m-Xylene	5	0.39	0.55	2.19	3.03	3.58	1.72	1.47	-	4.06	1.22	2.77	0.24	6.14
Pyridine	5	0.37	0.42	0.98	1.79	2.08	0.83	0.52	-	1.66	0.71	1.91	0.25	1.99
o-Xylene	5	0.20	0.32	1.01	1.53	1.86	0.88	0.74	-	2.05	0.64	2.64	0.14	3.00
1,3,5-Trimethylbenzene	5	0.06	0.07	0.20	0.26	0.30	0.16	0.11	-	0.34	0.13	2.21	0.04	0.45
Styrene	5	0.22	0.23	0.64	0.76	0.85	0.44	0.25	0.05	0.83	0.38	1.84	0.14	1.01
p-Isopropyltoluene	5	0.20	0.21	0.32	0.90	0.91	0.59	0.37	0.01	1.17	0.49	2.03	0.16	1.53
1,2,4-Trimethylbenzene	5	0.29	0.34	0.91	1.17	1.38	0.76	0.51	-	1.57	0.62	2.08	0.19	2.00
3-Ethenylpyridine	5	0.72	0.83	2.43	3.36	4.02	1.69	1.01	0.08	3.30	1.45	1.95	0.50	4.18
Naphthalene	5	0.14	0.16	0.33	0.35	0.36	0.25	0.11	0.08	0.42	0.23	1.58	0.11	0.11
1,3-Butadiene	5	0.03	0.21	2.55	14.4	17.3	3.63	5.40	0.08	12.2	0.78	12.7	0.01	44.8
Winter														
n-Hexane	5	0.83	1.17	1.94	3.15	3.28	2.12	1.03	0.84	3.39	1.89	1.75	0.95	3.79
Benzene	5	7.68	3.95	8.63	12.3	14.8	8.24	4.57	2.56	13.9	7.21	1.81	3.46	15.0
Toluene	5	1.02	9.04	21.3	38.1	48.0	23.1	16.2	3.00	43.2	18.7	2.10	7.44	47.2
Ethylbenzene	5	1.02	1.25	2.40	6.98	10.6	3.77	3.93	-	8.66	2.64	2.46	0.86	8.08
p-Xylene	5	0.74	1.03	1.99	5.00	7.37	2.81	2.65	-	6.10	2.07	2.36	0.71	5.99
m-Xylene	5	2.49	3.19	6.49	19.2	29.7	10.2	11.1	-	24.1	6.96	2.57	2.16	22.4
Pyridine	5	2.83	3.09	8.03	9.08	10.0	6.47	3.20	2.50	10.4	5.73	1.78	2.80	11.7
o-Xylene	5	0.89	1.20	1.87	6.08	9.54	3.28	3.55	-	7.70	2.28	2.44	0.76	6.91
1,3,5-Trimethylbenzene	5	0.41	0.42	0.45	1.31	1.69	0.78	0.55	0.09	1.47	0.66	1.87	0.30	1.43
Styrene	5	1.16	1.20	2.80	3.47	3.89	2.43	1.19	0.95	3.91	2.17	1.74	1.09	4.31
p-Isopropyltoluene	5	0.72	0.78	0.93	1.86	2.35	1.24	0.67	0.41	2.07	1.12	1.61	0.62	2.03
1,2,4-Trimethylbenzene	5	1.42	1.46	1.58	5.06	6.82	2.92	2.32	0.05	5.80	2.37	1.98	1.02	5.54
3-Ethenylpyridine	5	4.52	4.82	8.49	10.2	10.3	7.73	2.76	4.31	11.1	7.30	1.48	4.50	11.8
Naphthalene	5	0.47	0.47	0.84	1.21	1.37	0.84	0.39	0.36	1.32	0.77	1.61	0.43	0.43
1,3-Butadiene	5	0.00	0.40	4.58	7.35	8.67	4.02	3.62	4.31	8.51	0.56	77.3	0.00	123.

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable

Table A14.2. Characterisation of PAH other indoors microenvironment concentrations by strata in pubs

	N	Min	25%	50%	75%	Max	Mean	SD	LB[a]	UB[b]	GM	GSD	GLB[c]	GUB[d]
All seasons														
Acenaphthalene	11	0.00	0.50	1.41	2.74	7.63	2.05	2.33	0.26	3.84	1.46	3.09	0.57	3.74
Acenaphthene	11	0.12	0.12	0.33	1.72	1.72	0.72	0.87	-	2.88	0.41	3.83	0.01	11.5
Fluorene	11	0.21	0.22	0.23	0.53	0.82	0.35	0.27	0.02	0.68	0.29	1.78	0.14	0.60
Phenanthrene	11	0.17	0.31	0.63	1.23	3.23	0.90	0.94	0.27	1.53	0.60	2.52	0.32	1.11
Anthracene	11	0.07	0.09	0.16	0.29	0.37	0.19	0.11	0.10	0.27	0.16	1.83	0.10	0.25
Fluoranthene	11	0.62	1.03	1.74	3.42	6.64	2.33	1.93	1.04	3.63	1.78	2.11	1.08	2.95
Pyrene	11	0.23	0.56	0.94	2.72	4.86	1.55	1.45	0.58	2.53	1.07	2.50	0.58	1.98
Benzo(a)anthracene	11	0.04	0.14	0.66	2.61	6.22	1.82	2.28	0.29	3.34	0.63	5.73	0.20	2.04
Chrysene	11	0.33	0.52	1.79	7.72	14.4	4.59	5.45	0.93	8.25	2.00	4.26	0.75	5.29
Benzo(b)fluoranthene	11	0.20	0.26	0.78	3.78	5.54	1.79	1.99	0.46	3.13	0.92	3.52	0.40	2.15
Benzo(k)fluoranthene	11	0.22	0.26	0.67	3.14	4.71	1.53	1.66	0.41	2.64	0.82	3.33	0.37	1.84
Benzo(a)pyrene	11	0.10	0.16	0.45	3.32	4.91	1.45	1.71	0.29	2.60	0.62	4.31	0.23	1.67
Indeno(1,2,3-cd)pyrene	11	0.09	0.14	0.29	0.92	2.10	0.64	0.73	0.14	1.13	0.35	3.15	0.16	0.76
Dibenz(a,h)anthracene	11	0.01	0.05	0.11	0.92	1.51	0.41	0.50	0.07	0.74	0.16	5.17	0.05	0.47
Benzo(ghi)perylene	11	0.14	0.26	0.38	2.65	4.17	1.21	1.36	0.30	2.12	0.64	3.35	3.35	3.35
Coronene	11	0.04	0.09	0.22	0.58	0.95	0.32	0.30	0.10	0.54	0.20	2.91	2.91	2.91
Summer														
Acenaphthalene	6	0.00	0.04	0.50	0.85	0.86	0.47	0.44	-	1.17	0.50	2.52	0.05	4.94
Acenaphthene	6	0.33	0.33	1.03	1.72	1.72	1.03	0.98	-	9.86	0.75	3.21	0.00	-
Fluorene	6	0.23	0.23	0.24	0.24	0.24	0.24	0.01	0.17	0.30	0.23	1.03	0.18	0.31
Phenanthrene	6	0.17	0.19	0.36	0.67	0.69	0.41	0.22	0.17	0.64	0.35	1.80	0.19	0.65
Anthracene	6	0.07	0.11	0.17	0.31	0.37	0.20	0.11	0.06	0.34	0.17	1.85	0.08	0.37
Fluoranthene	6	0.62	0.79	1.07	1.86	2.23	1.26	0.60	0.63	1.90	1.15	1.60	0.70	1.88
Pyrene	6	0.23	0.38	0.63	1.07	1.47	0.72	0.44	0.26	1.18	0.61	1.90	0.31	1.20
Benzo(a)anthracene	6	0.04	0.07	0.19	0.38	0.66	0.24	0.23	0.00	0.48	0.16	2.69	0.06	0.46
Chrysene	6	0.33	0.41	0.53	1.09	1.79	0.74	0.54	0.17	1.31	0.63	1.82	0.33	1.18
Benzo(b)fluoranthene	6	0.20	0.25	0.31	0.49	0.78	0.38	0.21	0.15	0.60	0.34	1.61	0.20	0.56
Benzo(k)fluoranthene	6	0.22	0.24	0.27	0.45	0.67	0.34	0.17	0.16	0.52	0.31	1.51	0.20	0.48
Benzo(a)pyrene	6	0.10	0.10	0.21	0.34	0.45	0.23	0.14	0.08	0.37	0.19	1.85	0.10	0.37
Indeno(1,2,3-cd)pyrene	6	0.09	0.13	0.18	0.31	0.36	0.21	0.10	0.10	0.31	0.18	1.65	0.11	0.31
Dibenz(a,h)anthracene	6	0.01	0.02	0.06	0.10	0.11	0.06	0.04	0.02	0.10	0.04	2.60	0.02	0.12
Benzo(ghi)perylene	6	0.14	0.15	0.28	0.36	0.38	0.26	0.10	0.16	0.37	0.25	1.54	0.16	0.38
Coronene	6	0.04	0.05	0.10	0.13	0.16	0.09	0.05	0.03	0.15	0.08	1.70	0.04	0.16
Winter														
Acenaphthalene	5	1.41	1.76	2.44	5.33	7.63	3.32	2.48	0.25	6.40	2.79	1.88	1.28	6.08
Acenaphthene	5	0.12	0.12	0.12	0.12	0.12	0.12	-	-	-	-	-	-	-
Fluorene	5	0.21	0.21	0.23	0.82	0.82	0.42	0.35	-	1.28	0.34	2.14	0.05	2.26
Phenanthrene	5	0.36	0.50	1.23	2.63	3.23	1.49	1.16	0.05	2.94	1.13	2.41	0.38	3.36
Anthracene	5	0.07	0.08	0.14	0.29	0.33	0.17	0.11	-	0.35	0.14	1.93	0.05	0.40
Fluoranthene	5	1.24	1.50	3.42	5.84	6.64	3.62	2.25	0.82	6.41	3.01	2.02	1.26	7.23
Pyrene	5	0.79	0.96	2.72	4.07	4.86	2.55	1.66	0.49	4.61	2.07	2.14	0.81	5.33
Benzo(a)anthracene	5	1.35	1.95	2.61	6.01	6.22	3.71	2.17	1.01	6.40	3.18	1.89	1.44	7.03
Chrysene	5	3.55	4.70	7.72	14.4	14.4	9.21	5.02	2.97	15.4	8.03	1.83	3.79	17.0
Benzo(b)fluoranthene	5	1.43	1.67	3.78	5.19	5.54	3.50	1.79	1.27	5.72	3.08	1.81	1.47	6.43
Benzo(k)fluoranthene	5	1.24	1.46	3.14	4.36	4.71	2.95	1.48	1.11	4.80	2.62	1.78	1.28	5.34
Benzo(a)pyrene	5	1.15	1.34	3.32	4.27	4.91	2.91	1.56	0.98	4.84	2.53	1.85	1.18	5.44
Indeno(1,2,3-cd)pyrene	5	0.09	0.41	0.92	2.02	2.10	1.15	0.85	0.10	2.20	0.75	3.57	0.16	3.67
Dibenz(a,h)anthracene	5	0.32	0.38	0.92	1.22	1.51	0.82	0.47	0.23	1.41	0.71	1.88	0.32	1.55
Benzo(ghi)perylene	5	1.11	1.12	2.65	3.42	4.17	2.34	1.28	0.75	3.93	2.06	1.80	0.99	4.26
Coronene	5	0.27	0.30	0.56	0.80	0.95	0.55	0.27	0.21	0.89	0.50	1.68	0.26	0.94

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable

APPENDIX 14: OTHER INDOORS MICROENVIRONMENT STATISTICS SUMMARY

Table A14.3. Characterisation of VOC other indoors microenvironment concentrations by strata in restaurants

	N	Min	25%	50%	75%	Max	Mean	SD	LB[a]	UB[b]	GM	GSD	GLB[c]	GUB[d]
All seasons														
n-Hexane	8	0.43	0.59	0.90	1.01	2.12	0.94	0.52	0.51	1.38	0.85	1.62	0.57	1.26
Benzene	8	1.77	0.61	1.20	1.69	3.01	1.33	0.83	0.64	2.02	1.13	1.83	0.68	1.88
Toluene	8	0.30	2.15	4.28	6.01	7.80	4.27	2.10	2.52	6.03	3.80	1.71	2.42	5.96
Ethylbenzene	8	0.30	0.47	0.69	1.17	2.22	0.89	0.62	0.37	1.40	0.74	1.88	0.44	1.25
p-Xylene	8	0.24	0.33	0.55	1.07	1.18	0.65	0.37	0.34	0.95	0.56	1.80	0.34	0.91
m-Xylene	8	0.62	0.99	1.52	2.91	3.32	1.78	1.01	0.94	2.63	1.54	1.79	0.95	2.51
Pyridine	8	0.01	0.17	0.52	0.82	1.63	0.58	0.51	0.16	1.01	0.31	4.92	0.08	1.19
o-Xylene	8	0.30	0.36	0.73	1.54	2.03	0.96	0.65	0.41	1.51	0.77	2.09	0.41	1.42
1,3,5-Trimethylbenzene	8	0.04	0.05	0.17	0.25	1.68	0.33	0.55	-	0.79	0.16	3.28	0.06	0.42
Styrene	8	0.14	0.17	0.30	0.42	0.76	0.34	0.20	0.17	0.51	0.29	1.77	0.18	0.47
p-Isopropyltoluene	8	0.05	0.36	1.46	2.07	2.30	1.26	0.88	0.53	2.00	0.78	3.83	0.25	2.40
1,2,4-Trimethylbenzene	8	0.15	0.31	0.64	1.27	5.75	1.26	1.86	-	2.81	0.67	3.05	0.27	1.71
3-Ethenylpyridine	8	0.02	0.05	0.76	1.38	2.28	0.82	0.81	0.15	1.50	0.33	6.12	0.07	1.49
Naphthalene	8	0.12	0.16	0.18	0.36	0.41	0.23	0.11	0.14	0.32	0.21	1.57	0.14	0.14
1,3-Butadiene	8	0.15	0.53	0.85	1.52	1.95	0.96	0.60	0.15	1.46	0.76	2.23	0.39	1.49
Summer														
n-Hexane	4	0.43	0.55	0.90	0.98	1.01	0.81	0.26	0.40	1.22	0.77	1.48	0.41	1.44
Benzene	4	1.77	0.55	0.75	1.32	1.45	0.87	0.43	0.20	1.55	0.80	1.60	0.38	1.69
Toluene	4	0.47	2.42	4.57	6.01	6.42	4.33	1.92	1.27	7.39	3.92	1.74	1.62	9.49
Ethylbenzene	4	0.47	0.53	0.86	1.92	2.22	1.10	0.78	-	2.34	0.93	1.94	0.32	2.67
p-Xylene	4	0.35	0.40	0.66	1.08	1.18	0.71	0.36	0.14	1.28	0.64	1.68	0.28	1.47
m-Xylene	4	0.97	1.10	1.77	2.91	3.20	1.93	0.96	0.40	3.45	1.75	1.66	0.78	3.93
Pyridine	4	0.01	0.03	0.24	0.59	0.66	0.29	0.30	-	0.76	0.13	6.37	0.01	2.45
o-Xylene	4	0.31	0.41	1.11	1.91	2.03	1.14	0.78	-	2.39	0.91	2.33	0.24	3.47
1,3,5-Trimethylbenzene	4	0.05	0.07	0.17	0.25	0.27	0.16	0.09	0.01	0.31	0.14	2.13	0.04	0.46
Styrene	4	0.17	0.17	0.23	0.38	0.41	0.26	0.11	0.09	0.43	0.24	1.50	0.13	0.47
p-Isopropyltoluene	4	0.05	0.15	0.85	2.03	2.30	1.01	0.99	-	2.58	0.50	5.46	0.03	7.47
1,2,4-Trimethylbenzene	4	0.15	0.27	0.78	1.27	1.39	0.77	0.52	-	1.60	0.59	2.65	0.12	2.78
3-Ethenylpyridine	4	0.02	0.03	0.28	1.02	1.19	0.44	0.55	-	1.31	0.16	6.71	0.01	3.31
Naphthalene	4	0.12	0.13	0.18	0.22	0.23	0.18	0.05	0.10	0.25	0.17	1.33	0.11	0.11
1,3-Butadiene	4	0.15	0.33	0.99	1.52	1.66	0.95	0.63	-	1.94	0.70	2.88	0.13	3.78
Winter														
n-Hexane	4	0.59	0.59	0.80	1.84	2.12	1.08	0.72	-	2.22	0.93	1.82	0.36	2.41
Benzene	4	1.86	0.98	1.68	2.68	3.01	1.78	0.93	0.31	3.26	1.59	1.76	0.65	3.93
Toluene	4	0.30	2.15	3.61	6.90	7.80	4.22	2.57	0.13	8.31	3.68	1.83	1.41	9.60
Ethylbenzene	4	0.30	0.35	0.58	1.08	1.22	0.67	0.40	0.04	1.31	0.59	1.81	0.23	1.51
p-Xylene	4	0.24	0.26	0.46	1.02	1.16	0.58	0.42	-	1.24	0.48	2.00	0.16	1.46
m-Xylene	4	0.62	0.73	1.31	2.88	3.32	1.64	1.19	-	3.53	1.36	2.02	0.44	4.17
Pyridine	4	0.36	0.43	0.76	1.44	1.63	0.88	0.54	0.02	1.74	0.76	1.86	0.28	2.05
o-Xylene	4	0.30	0.35	0.63	1.35	1.54	0.78	0.54	-	1.64	0.65	2.00	0.21	1.96
1,3,5-Trimethylbenzene	4	0.04	0.05	0.13	1.31	1.68	0.50	0.79	-	1.75	0.18	5.14	0.01	2.39
Styrene	4	0.14	0.19	0.37	0.68	0.76	0.41	0.26	-	0.83	0.35	2.04	0.11	1.08
p-Isopropyltoluene	4	0.32	0.67	1.80	2.07	2.13	1.51	0.81	0.22	2.81	1.22	2.44	0.29	5.05
1,2,4-Trimethylbenzene	4	0.31	0.31	0.47	4.47	5.75	1.75	2.67	-	6.00	0.77	3.97	0.09	6.91
3-Ethenylpyridine	4	0.06	0.30	1.23	2.07	2.28	1.20	0.92	-	2.67	0.67	5.12	0.05	9.03
Naphthalene	4	0.16	0.16	0.28	0.41	0.41	0.28	0.14	0.06	0.51	0.26	1.71	0.11	0.11
1,3-Butadiene	4	0.52	0.53	0.69	1.67	1.95	0.96	0.67	-	2.03	0.83	1.84	0.31	2.18

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable

APPENDIX 14: OTHER INDOORS MICROENVIRONMENT STATISTICS SUMMARY

Table A14.4. Characterisation of PAH other indoors microenvironment concentrations by strata in restaurants

	N	Min	25%	50%	75%	Max	Mean	SD	LB[a]	UB[b]	GM	GSD	GLB[c]	GUB[d]
All seasons														
Acenaphthalene	7	0.25	0.26	0.48	1.36	4.64	1.17	1.59	-	2.63	0.42	1.72	0.18	1.01
Acenaphthene	7	0.19	0.31	1.27	2.11	2.19	1.23	0.95	-	2.73	0.62	3.13	0.04	10.5
Fluorene	7	0.01	0.22	1.09	3.70	3.73	1.79	1.79	-	4.01	1.20	2.96	0.08	17.7
Phenanthrene	7	0.05	0.07	0.27	0.70	0.76	0.36	0.32	-	0.76	0.14	3.85	0.00	3.87
Anthracene	7	0.02	0.03	0.08	0.16	0.19	0.09	0.07	0.01	0.17	0.04	2.68	0.00	0.49
Fluoranthene	7	0.27	0.60	0.71	1.51	1.74	1.00	0.56	0.48	1.52	0.67	2.15	0.20	2.26
Pyrene	7	0.22	0.23	0.38	1.07	1.08	0.58	0.38	0.23	0.94	0.37	2.10	0.11	1.21
Benzo(a)anthracene	7	0.02	0.05	0.10	0.23	0.49	0.15	0.17	0.00	0.30	0.12	3.94	0.01	1.09
Chrysene	7	0.25	0.28	0.40	0.90	1.24	0.55	0.37	0.21	0.90	0.62	1.95	0.21	1.78
Benzo(b)fluoranthene	7	0.15	0.25	0.32	0.53	0.97	0.41	0.27	0.16	0.66	0.48	1.70	0.21	1.11
Benzo(k)fluoranthene	7	0.18	0.19	0.26	0.44	0.86	0.35	0.24	0.13	0.57	0.40	1.77	0.16	0.99
Benzo(a)pyrene	7	0.04	0.10	0.12	0.40	0.79	0.25	0.27	0.00	0.49	0.27	2.49	0.06	1.16
Indeno(1,2,3-cd)pyrene	7	0.08	0.13	0.17	0.28	0.51	0.22	0.14	0.09	0.35	0.26	1.64	0.12	0.57
Dibenz(a,h)anthracene	7	0.01	0.02	0.03	0.17	0.17	0.07	0.07	0.01	0.14	0.06	2.32	0.02	0.23
Benzo(ghi)perylene	7	0.21	0.24	0.28	0.30	0.68	0.32	0.16	0.17	0.47	0.33	1.66	0.15	0.74
Coronene	7	0.02	0.09	0.15	0.17	0.37	0.15	0.11	0.05	0.25	0.16	1.87	0.06	0.43
Summer														
Acenaphthalene	3	0.25	0.25	1.36	4.64	4.64	2.08	2.28	-	7.75	1.16	4.33	0.03	-
Acenaphthene	3	2.19	2.19	2.19	2.19	2.19	2.19	-	-	-	-	-	-	-
Fluorene	3	0.01	0.01	1.84	3.67	3.67	1.84	2.59	-	25.09	0.19	65.09	0.00	-
Phenanthrene	3	0.27	0.27	0.52	0.76	0.76	0.52	0.35	-	3.63	0.45	2.08	0.00	-
Anthracene	3	0.03	0.03	0.15	0.19	0.19	0.12	0.08	-	0.33	0.09	2.73	0.01	1.15
Fluoranthene	3	0.71	0.71	1.46	1.51	1.51	1.23	0.45	0.11	2.34	1.16	1.53	0.40	3.35
Pyrene	3	0.38	0.38	0.76	1.07	1.07	0.74	0.35	-	1.60	0.68	1.69	0.18	2.51
Benzo(a)anthracene	3	0.05	0.05	0.05	0.10	0.10	0.07	0.03	-	0.14	0.06	1.49	0.02	0.17
Chrysene	3	0.25	0.25	0.34	0.40	0.40	0.33	0.08	0.14	0.52	0.32	1.27	0.18	0.59
Benzo(b)fluoranthene	3	0.15	0.15	0.25	0.32	0.32	0.24	0.09	0.03	0.45	0.23	1.47	0.09	0.60
Benzo(k)fluoranthene	3	0.18	0.18	0.19	0.26	0.26	0.21	0.04	0.10	0.32	0.21	1.22	0.13	0.34
Benzo(a)pyrene	3	0.04	0.04	0.10	0.12	0.12	0.09	0.04	-	0.19	0.08	1.80	0.02	0.34
Indeno(1,2,3-cd)pyrene	3	0.08	0.08	0.13	0.16	0.16	0.12	0.04	0.02	0.22	0.12	1.43	0.05	0.29
Dibenz(a,h)anthracene	3	0.01	0.01	0.02	0.17	0.17	0.07	0.09	-	0.29	0.03	4.38	0.00	1.27
Benzo(ghi)perylene	3	0.24	0.24	0.25	0.30	0.30	0.26	0.03	0.18	0.34	0.26	1.13	0.20	0.35
Coronene	3	0.02	0.02	0.15	0.15	0.15	0.11	0.08	-	0.29	0.08	3.20	0.00	1.38
Winter														
Acenaphthalene	4	0.26	0.27	0.39	0.77	0.87	0.48	0.28	0.03	0.92	0.42	1.72	0.18	1.01
Acenaphthene	4	0.19	0.19	0.68	1.85	1.85	0.91	0.85	-	3.03	0.62	3.13	0.04	10.5
Fluorene	4	0.43	0.43	1.09	3.73	3.73	1.75	1.75	-	6.09	1.20	2.96	0.08	17.7
Phenanthrene	4	0.05	0.05	0.08	0.63	0.63	0.25	0.33	-	1.06	0.14	3.85	0.00	3.87
Anthracene	4	0.02	0.02	0.03	0.13	0.13	0.06	0.06	-	0.21	0.04	2.68	0.00	0.49
Fluoranthene	4	0.27	0.35	0.66	1.48	1.74	0.83	0.63	-	1.84	0.67	2.15	0.20	2.26
Pyrene	4	0.22	0.22	0.29	0.90	1.08	0.47	0.41	-	1.12	0.37	2.10	0.11	1.21
Benzo(a)anthracene	4	0.02	0.04	0.17	0.43	0.49	0.21	0.21	-	0.54	0.12	3.94	0.01	1.09
Chrysene	4	0.28	0.33	0.68	1.16	1.24	0.72	0.43	0.03	1.41	0.62	1.95	0.21	1.78
Benzo(b)fluoranthene	4	0.31	0.32	0.43	0.86	0.97	0.54	0.31	0.05	1.02	0.48	1.70	0.21	1.11
Benzo(k)fluoranthene	4	0.25	0.26	0.36	0.76	0.86	0.46	0.28	0.00	0.91	0.40	1.77	0.16	0.99
Benzo(a)pyrene	4	0.10	0.12	0.29	0.69	0.79	0.37	0.31	-	0.86	0.27	2.49	0.06	1.16
Indeno(1,2,3-cd)pyrene	4	0.17	0.18	0.24	0.45	0.51	0.29	0.16	0.04	0.54	0.26	1.64	0.12	0.57
Dibenz(a,h)anthracene	4	0.03	0.03	0.06	0.15	0.17	0.08	0.07	-	0.18	0.06	2.32	0.02	0.23
Benzo(ghi)perylene	4	0.21	0.23	0.29	0.59	0.68	0.37	0.21	0.03	0.70	0.33	1.66	0.15	0.74
Coronene	4	0.09	0.10	0.14	0.32	0.37	0.19	0.13	-	0.39	0.16	1.87	0.06	0.43

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable

APPENDIX 14: OTHER INDOORS MICROENVIRONMENT STATISTICS SUMMARY

Table A14.5. Characterisation of VOC other indoors microenvironment concentrations by strata in library

	N	Min	25%	50%	75%	Max	Mean	SD	LB[a]	UB[b]	GM	GSD	GLB[c]	GUB[d]
All seasons														
n-Hexane	4	0.28	0.34	0.53	2.95	3.75	1.27	1.66	-	3.91	0.74	3.09	-	-
Benzene	4	1.28	0.59	1.06	2.35	2.64	1.33	0.96	-	2.87	1.09	2.07	-	-
Toluene	4	0.27	1.63	3.34	9.87	11.8	4.95	4.72	-	12.4	3.57	2.53	-	-
Ethylbenzene	4	0.27	0.42	1.01	1.74	1.94	1.06	0.69	-	2.16	0.85	2.30	-	-
p-Xylene	4	0.23	0.38	1.01	1.41	1.49	0.93	0.54	0.07	1.79	0.76	2.32	-	-
m-Xylene	4	0.62	0.97	2.51	3.63	3.84	2.37	1.38	0.16	4.57	1.94	2.25	-	-
Pyridine	4	0.03	0.03	0.04	0.08	0.09	0.05	0.03	0.00	0.10	0.05	1.72	-	-
o-Xylene	4	0.29	0.47	1.35	1.73	1.74	1.18	0.68	0.10	2.26	0.96	2.30	-	-
1,3,5-Trimethylbenzene	4	0.08	0.11	0.22	0.37	0.41	0.23	0.14	0.02	0.45	0.20	2.02	-	-
Styrene	4	0.07	0.14	0.52	0.97	1.05	0.54	0.43	-	1.22	0.37	3.22	-	-
p-Isopropyltoluene	4	0.02	0.02	0.21	0.39	0.39	0.21	0.21	-	0.53	0.10	5.06	-	-
1,2,4-Trimethylbenzene	4	0.37	0.47	0.77	1.28	1.45	0.84	0.45	0.13	1.56	0.75	1.75	-	-
3-Ethenylpyridine	4	0.02	0.02	0.04	0.07	0.08	0.05	0.03	0.00	0.09	0.04	1.80	-	-
Naphthalene	4	0.08	0.12	0.69	1.43	1.53	0.75	0.69	-	1.85	0.43	3.91	-	-
1,3-Butadiene	1	0.56	0.56	0.56	0.56	0.56	0.56	-	-	-	0.56	-	-	-
Summer														
n-Hexane	2	0.28	0.28	0.41	0.54	0.54	0.41	0.19	-	2.08	0.39	1.60	-	-
Benzene	2	1.28	0.59	0.60	0.62	0.62	0.60	0.02	0.39	0.81	0.60	1.04	-	-
Toluene	2	0.27	1.28	1.98	2.68	2.68	1.98	0.99	-	10.8	1.85	1.69	-	-
Ethylbenzene	2	0.27	0.27	0.71	1.15	1.15	0.71	0.62	-	6.28	0.56	2.79	-	-
p-Xylene	2	0.23	0.23	0.71	1.18	1.18	0.71	0.68	-	6.79	0.52	3.21	-	-
m-Xylene	2	0.62	0.62	1.80	2.99	2.99	1.80	1.68	-	16.9	1.36	3.06	-	-
Pyridine	2	0.03	0.03	0.06	0.09	0.09	0.06	0.05	-	0.48	0.05	2.44	-	-
o-Xylene	2	0.29	0.29	0.99	1.68	1.68	0.99	0.98	-	9.83	0.70	3.44	-	-
1,3,5-Trimethylbenzene	2	0.08	0.08	0.14	0.21	0.21	0.14	0.09	-	0.99	0.13	2.04	-	-
Styrene	2	0.07	0.07	0.20	0.33	0.33	0.20	0.18	-	1.79	0.16	2.83	-	-
p-Isopropyltoluene	2	0.02	0.02	0.20	0.39	0.39	0.20	0.26	-	2.56	0.08	9.46	-	-
1,2,4-Trimethylbenzene	2	0.37	0.37	0.57	0.77	0.77	0.57	0.28	-	3.13	0.54	1.68	-	-
3-Ethenylpyridine	2	0.02	0.02	0.05	0.08	0.08	0.05	0.04	-	0.43	0.04	2.57	-	-
Naphthalene	2	0.08	0.08	0.60	1.12	1.12	0.60	0.74	-	7.22	0.30	6.40	-	-
1,3-Butadiene	0	-	-	-	-	-	-	-	-	-	-	-	-	-
Winter														
n-Hexane	2	0.53	0.53	2.14	3.75	3.75	2.14	2.28	-	22.6	1.41	4.00	-	-
Benzene	2	4.00	1.49	2.07	2.64	2.64	2.07	0.81	-	9.32	1.99	1.49	-	-
Toluene	2	0.88	4.00	7.91	11.8 2	11.8 2	7.91	5.53	-	57.6	6.88	2.15	-	-
Ethylbenzene	2	0.88	0.88	1.41	1.94	1.94	1.41	0.75	-	8.13	1.30	1.75	-	-
p-Xylene	2	0.84	0.84	1.16	1.49	1.49	1.16	0.46	-	5.27	1.12	1.50	-	-
m-Xylene	2	2.02	2.02	2.93	3.84	3.84	2.93	1.29	-	14.5	2.79	1.58	-	-
Pyridine	2	0.04	0.04	0.04	0.05	0.05	0.04	0.01	-	0.14	0.04	1.28	-	-
o-Xylene	2	1.01	1.01	1.37	1.74	1.74	1.37	0.52	-	6.03	1.32	1.47	-	-
1,3,5-Trimethylbenzene	2	0.24	0.24	0.32	0.41	0.41	0.32	0.12	-	1.42	0.31	1.47	-	-
Styrene	2	0.71	0.71	0.88	1.05	1.05	0.88	0.24	-	3.07	0.86	1.32	-	-
p-Isopropyltoluene	2	0.04	0.04	0.21	0.38	0.38	0.21	0.24	-	2.39	0.12	5.11	-	-
1,2,4-Trimethylbenzene	2	0.76	0.76	1.11	1.45	1.45	1.11	0.49	-	5.50	1.05	1.58	-	-
3-Ethenylpyridine	2	0.03	0.03	0.04	0.05	0.05	0.04	0.02	-	0.18	0.04	1.48	-	-
Naphthalene	2	0.25	0.25	0.89	1.53	1.53	0.89	0.91	-	9.03	0.62	3.57	-	-
1,3-Butadiene	1	0.56	0.56	0.56	0.56	0.56	0.56	-	-	-	0.56	-	-	-

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable

APPENDIX 14: OTHER INDOORS MICROENVIRONMENT STATISTICS SUMMARY

Table A14.6. Characterisation of PAH other indoors microenvironment concentrations by strata in library

	N	Min	25%	50%	75%	Max	Mean	SD	LB[a]	UP[b]	GM	GSD	GLB[c]	GUB[d]
All seasons														
Acenaphthalene	2	0.38	0.38	1.18	1.99	1.99	1.19	1.14	-	11.4	0.87	3.22	-	-
Acenaphthene	2	1.35	1.35	1.97	2.59	2.59	1.97	0.88	-	9.85	1.87	1.59	-	-
Fluorene	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	2	0.23	0.23	1.2	2.17	2.17	1.20	1.37	-	13.53	0.71	4.89	-	-
Anthracene	2	0.16	0.16	0.28	0.41	0.41	0.29	0.18	-	1.87	0.26	1.95	-	-
Fluoranthene	2	1.37	1.37	1.99	2.61	2.61	1.99	0.88	-	9.87	1.89	1.58	-	-
Pyrene	2	0.62	0.62	0.78	0.95	0.95	0.79	0.23	-	2.88	0.77	1.35	-	-
Benzo(a)anthracene	2	0.01	0.01	0.21	0.41	0.41	0.21	0.28	-	2.75	0.06	13.82	-	-
Chrysene	2	0.29	0.29	0.41	0.54	0.54	0.42	0.18	-	2.00	0.40	1.55	-	-
Benzo(b)fluoranthene	2	0.09	0.09	0.21	0.34	0.34	0.22	0.18	-	1.80	0.17	2.56	-	-
Benzo(k)fluoranthene	2	0.07	0.07	0.22	0.38	0.38	0.23	0.22	-	2.19	0.16	3.31	-	-
Benzo(a)pyrene	2	0.02	0.02	0.13	0.25	0.25	0.14	0.16	-	1.60	0.07	5.97	-	-
Indeno(1,2,3-cd)pyrene	2	0.22	0.22	0.22	0.23	0.23	0.23	0.01	-	0.29	0.22	1.03	-	-
Dibenz(a,h)anthracene	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	2	0.04	0.04	0.21	0.38	0.38	0.21	0.24	-	2.37	0.12	4.91	-	-
Coronene	2	0.14	0.14	0.14	0.14	0.14	0.14	-	-	-	-	-	-	-

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable

APPENDIX 14: OTHER INDOORS MICROENVIRONMENT STATISTICS SUMMARY

Table A14.7. Characterisation of VOC other indoors microenvironment concentrations by strata in museum

	N	Min	25%	50%	75%	Max	Mean	SD	LB[a]	UB[b]	GM	GSD	GLB[c]	GUB[d]
All seasons														
n-Hexane	2	0.22	0.22	0.42	0.63	0.63	0.42	0.29	-	3.01	0.37	2.09	-	-
Benzene	2	1.45	0.67	0.84	1.01	1.01	0.84	0.24	-	3.02	0.82	1.34	-	-
Toluene	2	0.27	1.45	2.29	3.12	3.12	2.29	1.18	-	12.8	2.13	1.72	-	-
Ethylbenzene	2	0.27	0.27	0.44	0.61	0.61	0.44	0.24	-	2.59	0.41	1.77	-	-
p-Xylene	2	0.20	0.20	0.32	0.44	0.44	0.32	0.17	-	1.88	0.29	1.78	-	-
m-Xylene	2	0.53	0.53	0.85	1.17	1.17	0.85	0.45	-	4.90	0.79	1.74	-	-
Pyridine	2	0.05	0.05	0.09	0.13	0.13	0.09	0.06	-	0.61	0.08	1.95	-	-
o-Xylene	2	0.29	0.29	0.45	0.61	0.61	0.45	0.22	-	2.47	0.42	1.68	-	-
1,3,5-Trimethylbenzene	2	0.18	0.18	0.35	0.52	0.52	0.35	0.24	-	2.54	0.31	2.12	-	-
Styrene	2	0.09	0.09	0.32	0.55	0.55	0.32	0.32	-	3.23	0.23	3.52	-	-
p-Isopropyltoluene	2	0.09	0.09	0.20	0.31	0.31	0.20	0.15	-	1.59	0.16	2.43	-	-
1,2,4-Trimethylbenzene	2	0.78	0.78	1.17	1.56	1.56	1.17	0.55	-	6.14	1.10	1.64	-	-
3-Ethenylpyridine	2	0.02	0.02	0.04	0.06	0.06	0.04	0.03	-	0.27	0.04	1.91	-	-
Naphthalene	2	0.18	0.18	0.37	0.56	0.56	0.37	0.27	-	2.77	0.32	2.23	-	-
1,3-Butadiene	2	0.01	0.01	0.02	0.02	0.02	0.00	0.00	-	0.00	0.01	2.13	-	-
Summer														
n-Hexane	1	-	-	-	-	-	0.63	-	-	-	0.63	-	-	-
Benzene	1	-	-	-	-	-	0.67	-	-	-	0.67	-	-	-
Toluene	1	-	-	-	-	-	1.45	-	-	-	1.45	-	-	-
Ethylbenzene	1	-	-	-	-	-	0.27	-	-	-	0.27	-	-	-
p-Xylene	1	-	-	-	-	-	0.20	-	-	-	0.20	-	-	-
m-Xylene	1	-	-	-	-	-	0.53	-	-	-	0.53	-	-	-
Pyridine	1	-	-	-	-	-	0.05	-	-	-	0.05	-	-	-
o-Xylene	1	-	-	-	-	-	0.29	-	-	-	0.29	-	-	-
1,3,5-Trimethylbenzene	1	-	-	-	-	-	0.18	-	-	-	0.18	-	-	-
Styrene	1	-	-	-	-	-	0.09	-	-	-	0.09	-	-	-
p-Isopropyltoluene	1	-	-	-	-	-	0.09	-	-	-	0.09	-	-	-
1,2,4-Trimethylbenzene	1	-	-	-	-	-	0.78	-	-	-	0.78	-	-	-
3-Ethenylpyridine	1	-	-	-	-	-	0.02	-	-	-	0.02	-	-	-
Naphthalene	1	-	-	-	-	-	0.18	-	-	-	0.18	-	-	-
1,3-Butadiene	1	-	-	-	-	-	0.01	-	-	-	0.01	-	-	-
Winter														
n-Hexane	1	-	-	-	-	-	0.22	-	-	-	0.22	-	-	-
Benzene	1	-	-	-	-	-	1.01	-	-	-	1.01	-	-	-
Toluene	1	-	-	-	-	-	3.12	-	-	-	3.12	-	-	-
Ethylbenzene	1	-	-	-	-	-	0.61	-	-	-	0.61	-	-	-
p-Xylene	1	-	-	-	-	-	0.44	-	-	-	0.44	-	-	-
m-Xylene	1	-	-	-	-	-	1.17	-	-	-	1.17	-	-	-
Pyridine	1	-	-	-	-	-	0.13	-	-	-	0.13	-	-	-
o-Xylene	1	-	-	-	-	-	0.61	-	-	-	0.61	-	-	-
1,3,5-Trimethylbenzene	1	-	-	-	-	-	0.52	-	-	-	0.52	-	-	-
Styrene	1	-	-	-	-	-	0.55	-	-	-	0.55	-	-	-
p-Isopropyltoluene	1	-	-	-	-	-	0.31	-	-	-	0.31	-	-	-
1,2,4-Trimethylbenzene	1	-	-	-	-	-	1.56	-	-	-	1.56	-	-	-
3-Ethenylpyridine	1	-	-	-	-	-	0.06	-	-	-	0.06	-	-	-
Naphthalene	1	-	-	-	-	-	0.56	-	-	-	0.56	-	-	-
1,3-Butadiene	1	-	-	-	-	-	0.02	-	-	-	0.02	-	-	-

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable

APPENDIX 14: OTHER INDOORS MICROENVIRONMENT STATISTICS SUMMARY

Table A14.8. Characterisation of PAH other indoors microenvironment concentrations by strata in museum

	N	Min	25%	50%	75%	Max	Mean	SD	LB[a]	UB[b]	GM	GSD	GLB[c]	GUB[d]
All seasons														
Acenaphthalene	2	0.2	0.2	1.11	2.02	2.02	1.11	1.29	-	12.67	0.64	5.13	0.00	-
Acenaphthene	2	0.19	0.19	0.19	0.19	0.19	0.19	-		-	-	-	-	-
Fluorene	2	0.02	0.02	0.02	0.02	0.02	0.02	-		-	-	-	-	-
Phenanthrene	2	0.8	0.8	2.47	4.14	4.14	2.47	2.36	-	23.6	1.82	3.20	0.00	-
Anthracene	2	0.2	0.2	0.35	0.51	0.51	0.36	0.22	-	2.32	0.32	1.94	0.00	-
Fluoranthene	2	1.58	1.58	2.67	3.77	3.77	2.68	1.55	-	16.5	2.44	1.85	0.01	-
Pyrene	2	0.76	0.76	0.97	1.18	1.18	0.97	0.30	-	3.64	0.95	1.36	0.06	-
Benzo(a)anthracene	2	0.02	0.02	0.03	0.04	0.04	0.03	0.01	-	0.16	0.03	1.63	0.00	2.31
Chrysene	2	0.28	0.28	0.28	0.29	0.29	0.29	0.01	0.22	0.35	0.28	1.03	0.23	0.36
Benzo(b)fluoranthene	2	0.07	0.07	0.08	0.1	0.1	0.09	0.02	-	0.28	0.08	1.29	0.01	0.81
Benzo(k)fluoranthene	2	0.06	0.06	0.08	0.1	0.1	0.08	0.03	-	0.33	0.08	1.44	0.00	1.99
Benzo(a)pyrene	2	0.03	0.03	0.03	0.04	0.04	0.04	0.01	-	0.10	0.03	1.23	0.01	0.22
Indeno(1,2,3-cd)pyrene	2	0.03	0.03	0.03	0.04	0.04	0.04	0.01	-	0.10	0.03	1.23	0.01	0.22
Dibenz(a,h)anthracene	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(ghi)perylene	2	0.07	0.07	0.07	0.07	0.07	0.07	0.00	-	-	-	-	-	-
Coronene	2	0.01	0.01	0.01	0.01	0.01	0.01	0.00	-	-	-	-	-	-

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable

APPENDIX 14: OTHER INDOORS MICROENVIRONMENT STATISTICS SUMMARY

Table A14.9. Characterisation of VOC other indoors microenvironment concentrations by strata in supermarket

	N	Min	25%	50%	75%	Max	Mean	SD	LB[a]	UB[b]	GM	GSD	GLB[c]	GUB[d]
All seasons														
n-Hexane	2	1.47	1.47	2.74	4.00	4.00	2.74	1.79	-	18.7	2.43	2.03	-	-
Benzene	2	69.2	1.84	4.79	7.74	7.74	4.79	4.17	-	42.2	3.78	2.76	-	-
Toluene	2	3.93	69.2	105.	141.	141	105	50.9	-	562	98.9	1.66	-	-
Ethylbenzene	2	3.93	3.93	4.10	4.26	4.26	4.10	0.23	2.01	6.19	4.09	1.06	-	-
p-Xylene	2	2.09	2.09	2.27	2.46	2.46	2.27	0.26	-	4.61	2.27	1.12	-	-
m-Xylene	2	4.96	4.96	5.41	5.86	5.86	5.41	0.63	-	11.0	5.39	1.12	-	-
Pyridine	2	0.06	0.06	0.11	0.15	0.15	0.11	0.06	-	0.63	0.10	1.79	-	-
o-Xylene	2	2.68	2.68	3.10	3.51	3.51	3.10	0.59	-	8.39	3.07	1.21	-	-
1,3,5-Trimethylbenzene	2	0.45	0.45	0.51	0.57	0.57	0.51	0.08	-	1.25	0.51	1.17	-	-
Styrene	2	1.83	1.83	2.09	2.35	2.35	2.09	0.37	-	5.43	2.07	1.20	-	-
p-Isopropyltoluene	2	1.80	1.80	2.11	2.42	2.42	2.11	0.44	-	6.05	2.08	1.23	-	-
1,2,4-Trimethylbenzene	2	1.40	1.40	1.77	2.15	2.15	1.77	0.53	-	6.57	1.73	1.36	-	-
3-Ethenylpyridine	2	0.04	0.04	0.04	0.04	0.04	0.04	0.00	0.01	0.08	0.04	1.10	-	-
Naphthalene	2	1.04	1.04	1.06	1.07	1.07	1.06	0.02	0.89	1.22	1.06	1.02	-	-
1,3-Butadiene	0	-	-	-	-	-	-	-	-	-	-	-	-	-
Summer														
n-Hexane	1	-	-	-	-	-	4.00	-	-	-	4.00	-	-	-
Benzene	1	-	-	-	-	-	1.84	-	-	-	1.84	-	-	-
Toluene	1	-	-	-	-	-	69.2	-	-	-	69.2	-	-	-
Ethylbenzene	1	-	-	-	-	-	3.93	-	-	-	3.93	-	-	-
p-Xylene	1	-	-	-	-	-	2.09	-	-	-	2.09	-	-	-
m-Xylene	1	-	-	-	-	-	4.96	-	-	-	4.96	-	-	-
Pyridine	1	-	-	-	-	-	0.15	-	-	-	0.15	-	-	-
o-Xylene	1	-	-	-	-	-	2.68	-	-	-	2.68	-	-	-
1,3,5-Trimethylbenzene	1	-	-	-	-	-	0.57	-	-	-	0.57	-	-	-
Styrene	1	-	-	-	-	-	2.35	-	-	-	2.35	-	-	-
p-Isopropyltoluene	1	-	-	-	-	-	1.80	-	-	-	1.80	-	-	-
1,2,4-Trimethylbenzene	1	-	-	-	-	-	2.15	-	-	-	2.15	-	-	-
3-Ethenylpyridine	1	-	-	-	-	-	0.04	-	-	-	0.04	-	-	-
Naphthalene	1	-	-	-	-	-	1.07	-	-	-	1.07	-	-	-
1,3-Butadiene	0	-	-	-	-	-	-	-	-	-	-	-	-	-
Winter														
n-Hexane	1	-	-	-	-	-	1.47	-	-	-	1.47	-	-	-
Benzene	1	-	-	-	-	-	7.74	-	-	-	7.74	-	-	-
Toluene	1	-	-	-	-	-	141	-	-	-	141	-	-	-
Ethylbenzene	1	-	-	-	-	-	4.26	-	-	-	4.26	-	-	-
p-Xylene	1	-	-	-	-	-	2.46	-	-	-	2.46	-	-	-
m-Xylene	1	-	-	-	-	-	5.86	-	-	-	5.86	-	-	-
Pyridine	1	-	-	-	-	-	0.06	-	-	-	0.06	-	-	-
o-Xylene	1	-	-	-	-	-	3.51	-	-	-	3.51	-	-	-
1,3,5-Trimethylbenzene	1	-	-	-	-	-	0.45	-	-	-	0.45	-	-	-
Styrene	1	-	-	-	-	-	1.83	-	-	-	1.83	-	-	-
p-Isopropyltoluene	1	-	-	-	-	-	2.42	-	-	-	2.42	-	-	-
1,2,4-Trimethylbenzene	1	-	-	-	-	-	1.40	-	-	-	1.40	-	-	-
3-Ethenylpyridine	1	-	-	-	-	-	0.04	-	-	-	0.04	-	-	-
Naphthalene	1	-	-	-	-	-	1.04	-	-	-	1.04	-	-	-
1,3-Butadiene	0	-	-	-	-	-	-	-	-	-	-	-	-	-

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable

APPENDIX 14: OTHER INDOORS MICROENVIRONMENT STATISTICS SUMMARY

Table A14.10. Characterisation of VOC other indoors microenvironment concentrations by strata in hair saloon and department store

	N	Min	25%	50%	75%	Max	Mean	SD	LB[a]	UB[b]	GM	GSD	GLB[c]	GUB[d]
Hair Saloon														
All seasons														
n-Hexane	1	-	-	-	-	-	0.22	-	-	-	0.22	-	-	-
Benzene	1	-	-	-	-	-	0.42	-	-	-	0.42	-	-	-
Toluene	1	-	-	-	-	-	1.75	-	-	-	1.75	-	-	-
Ethylbenzene	1	-	-	-	-	-	1.10	-	-	-	1.10	-	-	-
p-Xylene	1	-	-	-	-	-	1.10	-	-	-	1.10	-	-	-
m-Xylene	1	-	-	-	-	-	2.67	-	-	-	2.67	-	-	-
Pyridine	1	-	-	-	-	-	0.07	-	-	-	0.07	-	-	-
o-Xylene	1	-	-	-	-	-	1.12	-	-	-	1.12	-	-	-
1,3,5-Trimethylbenzene	1	-	-	-	-	-	0.12	-	-	-	0.12	-	-	-
Styrene	1	-	-	-	-	-	0.16	-	-	-	0.16	-	-	-
p-Isopropyltoluene	1	-	-	-	-	-	0.17	-	-	-	0.17	-	-	-
1,2,4-Trimethylbenzene	1	-	-	-	-	-	0.45	-	-	-	0.45	-	-	-
3-Ethenylpyridine	1	-	-	-	-	-	0.03	-	-	-	0.03	-	-	-
Naphthalene	1	-	-	-	-	-	0.24	-	-	-	0.24	-	-	-
1,3-Butadiene	0	-	-	-	-	-	-	-	-	-	-	-	-	-
Department Store														
All seasons														
n-Hexane	1	-	-	-	-	-	0.41	-	-	-	0.41	-	-	-
Benzene	1	-	-	-	-	-	0.74	-	-	-	0.74	-	-	-
Toluene	1	-	-	-	-	-	14.6	-	-	-	14.6	-	-	-
Ethylbenzene	1	-	-	-	-	-	0.95	-	-	-	0.95	-	-	-
p-Xylene	1	-	-	-	-	-	1.17	-	-	-	1.17	-	-	-
m-Xylene	1	-	-	-	-	-	3.00	-	-	-	3.00	-	-	-
Pyridine	1	-	-	-	-	-	0.07	-	-	-	0.07	-	-	-
o-Xylene	1	-	-	-	-	-	1.79	-	-	-	1.79	-	-	-
1,3,5-Trimethylbenzene	1	-	-	-	-	-	0.12	-	-	-	0.12	-	-	-
Styrene	1	-	-	-	-	-	0.29	-	-	-	0.29	-	-	-
p-Isopropyltoluene	1	-	-	-	-	-	0.17	-	-	-	0.17	-	-	-
1,2,4-Trimethylbenzene	1	-	-	-	-	-	0.50	-	-	-	0.50	-	-	-
3-Ethenylpyridine	1	-	-	-	-	-	0.07	-	-	-	0.07	-	-	-
Naphthalene	1	-	-	-	-	-	0.33	-	-	-	0.33	-	-	-
1,3-Butadiene	0	-	-	-	-	-	-	-	-	-	-	-	-	-

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable

Table A14.11. T-Test results. Transport station microenvironment VOC logged database (N=44)

Compounds	Levene's Test for Equality of variances		T-test for Equality of Means	
	F	Sig	F#	Sig
Summer vs. Winter				
n-Hexane	1.01	0.325	-1.91	0.069
Benzene	3.09	0.092	-3.84	0.001
Toluene	0.35	0.561	-1.82	0.081
Ethylbenzene	0.14	0.712	-1.55	0.135
p-Xylene	0.04	0.852	-1.80	0.084
m-Xylene	0.15	0.698	-1.98	0.059
Pyridine	0.99	0.331	-1.75	0.094
o-Xylene	0.21	0.651	-1.45	0.161
1,3,5-Trimethylbenzene	0.69	0.414	-2.43	0.023
Styrene	0.02	0.893	-2.93	0.007
p-Isopropyltoluene	0.67	0.423	-1.62	0.119
1,2,4-Trimethylbenzene	0.26	0.614	-2.08	0.048
3-Ethenylpyridine	0.68	0.419	-1.23	0.229
Naphthalene	0.00	0.990	-2.52	0.019
1,3-Butadiene	0.00	0.964	0.24	0.810
ETS vs. NETS				
n-Hexane	0.23	0.638	-2.35	0.033
Benzene	1.33	0.266	-4.15	0.001
Toluene	1.10	0.311	-4.79	0.000
Ethylbenzene	0.19	0.673	-3.27	0.005
p-Xylene	0.01	0.911	-3.58	0.002
m-Xylene	0.26	0.618	-3.69	0.002
Pyridine	0.36	0.559	-4.11	0.001
o-Xylene	0.45	0.512	-2.94	0.010
1,3,5-Trimethylbenzene	1.29	0.272	-2.69	0.016
Styrene	2.19	0.158	-5.68	0.000
p-Isopropyltoluene	5.25	0.036	-0.61	0.553
1,2,4-Trimethylbenzene	0.88	0.363	-2.60	0.019
3-Ethenylpyridine	9.41	0.007	-4.22	0.001
Naphthalene	1.89	0.188	-4.58	0.000
1,3-Butadiene	2.72	0.119	-0.88	0.390

Kolmogorov-Smirnov Z when variance heterogeneous

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable

APPENDIX 14: OTHER INDOORS MICROENVIRONMENT STATISTICS SUMMARY

Table A14.12. ANOVA results. Transport station microenvironment VOC logged database (N=44)

Compounds	Levene's Test for Equality of variances		ANOVA for Equality of Means	
	F	Sig	F#	Sig
Type				
n-Hexane	1.26	0.317	1.51	0.238
Benzene	1.40	0.270	2.90	0.047
Toluene	0.60	0.668	8.02	0.000
Ethylbenzene	0.71	0.596	2.58	0.067
p-Xylene	1.01	0.426	1.99	0.133
m-Xylene	1.11	0.377	1.75	0.177
Pyridine	1.00	0.429	9.65	0.000
o-Xylene	0.59	0.673	1.72	0.183
1,3,5-Trimethylbenzene	0.75	0.571	0.85	0.511
Styrene	1.52	0.234	3.85	0.017
p-Isopropyltoluene	2.63	0.064	3.87	0.017
1,2,4-Trimethylbenzene	0.70	0.603	0.82	0.525
3-Ethenylpyridine	5.74	0.003	16.88#	0.002
Naphthalene	4.03	0.014	6.78#	0.145
1,3-Butadiene	3.36	0.059	1.52	0.244

Kruskal-Wallis Chi-Square when variance heterogeneous

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable

APPENDIX 14: OTHER INDOORS MICROENVIRONMENT STATISTICS SUMMARY

Table A14.13. T-Test results. Transport station microenvironment PAH logged database (N=44)

Compounds	Levene's Test for Equality of variances		T-test for Equality of Means	
	F	Sig	F#	Sig
Summer vs. Winter				
Acenaphthalene	3.15	0.084	1.19	0.241
Acenaphthene	0.05	0.822	-1.09	0.292
Fluorene	6.88	0.016	1.09#	0.186
Phenanthrene	1.47	0.233	-0.42	0.675
Anthracene	0.07	0.787	-1.86	0.071
Fluoranthene	2.57	0.116	0.42	0.674
Pyrene	7.19	0.010	0.90#	0.387
Benzo(a)anthracene	4.86	0.033	1.81#	0.003
Chrysene	41.80	0.000	1.81#	0.003
Benzo(b)fluoranthene	13.08	0.001	1.81#	0.003
Benzo(k)fluoranthene	13.42	0.001	2.11#	0.000
Benzo(a)pyrene	8.35	0.006	1.81#	0.003
Indeno(1,2,3-cd)pyrene	9.28	0.004	1.51#	0.021
Dibenz(a,h)anthracene	5.51	0.025	1.85#	0.002
Benzo(ghi)perylene	8.08	0.007	2.11#	0.000
Coronene	0.29	0.594	3.44	0.001
ETS vs. NETS				
Acenaphthalene	2.77	0.106	-3.18	0.003
Acenaphthene	0.10	0.756	1.24	0.239
Fluorene	5.67	0.028	1.28#	0.076
Phenanthrene	0.22	0.643	-2.99	0.005
Anthracene	5.92	0.022	0.89#	0.400
Fluoranthene	0.85	0.364	-4.36	0.000
Pyrene	0.71	0.404	-4.87	0.000
Benzo(a)anthracene	3.75	0.061	-7.92	0.000
Chrysene	16.93	0.000	2.24#	0.000
Benzo(b)fluoranthene	14.16	0.001	2.01#	0.001
Benzo(k)fluoranthene	17.36	0.000	2.01#	0.001
Benzo(a)pyrene	4.23	0.048	2.39#	0.000
Indeno(1,2,3-cd)pyrene	14.78	0.001	2.01#	0.001
Dibenz(a,h)anthracene	0.64	0.430	-6.09	0.000
Benzo(ghi)perylene	17.93	0.000	2.31#	0.000
Coronene	1.27	0.268	-3.32	0.002

Kolmogorov-Smirnov Z when variance heterogeneous

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable

Table A14.14. ANOVA results. Transport station microenvironment PAH logged database (N=44)

Compounds	Levene's Test for Equality of variances		ANOVA for Equality of Means	
	F	Sig	F#	Sig
Type				
Acenaphthalene	1.32	0.281	0.03	0.994
Acenaphthene	3.49	0.040	6.91#	0.075
Fluorene	5.73	0.011	6.11#	0.047
Phenanthrene	1.60	0.206	4.84	0.006
Anthracene	7.36	0.001	14.62#	0.002
Fluoranthene	0.74	0.532	4.76	0.006
Pyrene	3.10	0.037	8.06#	0.045
Benzo(a)anthracene	7.23	0.001	16.48#	0.001
Chrysene	16.13	0.000	18.69#	0.000
Benzo(b)fluoranthene	10.41	0.000	17.12#	0.001
Benzo(k)fluoranthene	11.27	0.000	16.85#	0.001
Benzo(a)pyrene	7.02	0.001	16.04#	0.001
Indeno(1,2,3-cd)pyrene	8.30	0.000	13.61#	0.003
Dibenz(a,h)anthracene	5.26	0.010	9.69#	0.008
Benzo(ghi)perylene	19.68	0.000	13.53#	0.004
Coronene	3.82	0.018	11.88#	0.008

Kruskal-Wallis Chi-Square when variance heterogeneous

a) LB, Arithmetic Lower Bound, 95% CI. b) UB, Arithmetic Upper Bound, 95% CI, c) GLB, Geometric Lower Bound, 95% CI d) GUB, Geometric Upper Bound, 95% CI, (-) Not Applicable