

Supplementary Material: Statistical Modeling

1.	Statistical model for airborne nicotine.....	3
1.1.	Data for airborne nicotine at simulated Residential category III environmental condition (0.5 h ⁻¹) 3	
2.	Statistical model for airborne acetaldehyde.....	4
2.1.	Data for airborne acetaldehyde at simulated Residential category III environmental condition (0.5 h ⁻¹)4	
2.2.	Data for airborne acetaldehyde at simulated Store environmental condition (2.4 h ⁻¹)	5
2.3.	Data for airborne acetaldehyde at simulated Restaurant environmental conditions (4.3 h ⁻¹).....	6
3.	Statistical model for TVOC	7
3.1.	Data for TVOC at simulated Residential category III environmental condition (0.5 h ⁻¹)	7
3.2.	Data for TVOC at simulated Store environmental condition (2.4 h ⁻¹)	8
3.3.	Data for TVOC at simulated Restaurant environmental condition (4.3 h ⁻¹)	9
4.	Statistical model for TVOC with subtraction of flavor compounds.....	10
4.1.	Data for TVOC with subtraction of flavor compounds at simulated Residential category III environmental condition (0.5 h ⁻¹).....	10
4.2.	Data for TVOC with subtraction of flavor compounds at simulated Store environmental condition (2.4 h ⁻¹)	11
4.3.	Data for TVOC with subtraction of flavor compounds at simulated Restaurant environmental condition (4.3 h ⁻¹)	12
5.	Statistical model for airborne formaldehyde	12
5.1.	Data for airborne formaldehyde at simulated Residential category III environmental condition (0.5 h ⁻¹)12	
5.2.	Data for airborne formaldehyde at simulated Store environmental condition (2.4 h ⁻¹).....	13
5.3.	Data for airborne formaldehyde at simulated Restaurant environmental condition (4.3 h ⁻¹).....	14
6.	Statistical model for airborne benzene	15
6.1.	Data for airborne benzene at simulated Residential category III environmental condition (0.5 h ⁻¹) 15	
6.2.	Data for airborne benzene at simulated Store environmental condition (2.4 h ⁻¹)	16
6.3.	Data for airborne benzene at simulated Restaurant environmental condition (4.3 h ⁻¹)	17
7.	Statistical model for airborne isoprene.....	18
7.1.	Data for airborne isoprene at simulated Residential category III environmental condition (0.5 h ⁻¹) 18	
7.2.	Data for airborne isoprene at simulated Store environmental condition (2.4 h ⁻¹).....	19

7.3.	Data for airborne isoprene at simulated Restaurant environmental condition (4.3 h^{-1})	20
8.	Statistical model for airborne toluene.....	21
8.1.	Data for airborne toluene at simulated Residential category III environmental condition (0.5 h^{-1}) 22	
8.2.	Data for airborne toluene at simulated Store environmental condition (2.4 h^{-1})	23
8.3.	Data for airborne toluene at simulated Restaurant environmental condition (4.3 h^{-1})	23

Abbreviations:

BKG: Background

CI: Confidence interval

DF: degrees of freedom

Estimate: means, difference of means (= contrasts) estimates depending on cases

LCI: Lower limit of confidence interval

P1: Tobacco heating System

$\text{Pr} > F$: p-value Fisher

$\text{Pr} > |t|$: p-value student

REML: Restricted Maximum Likelihood

SE: Standard error

UCI – Upper limit of confidence interval

1. Statistical model for airborne nicotine

Model Information	
Data Set	WORK.COMPRESH_IQOS
Dependent Variable	Reported_Conc
Covariance Structure	Variance Components
Group Effects	Condition, Conditio
Estimation Method	REML
Residual Variance Method	None
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Satterthwaite

1.1. Data for airborne nicotine at simulated Residential category III environmental condition (0.5 h^{-1})

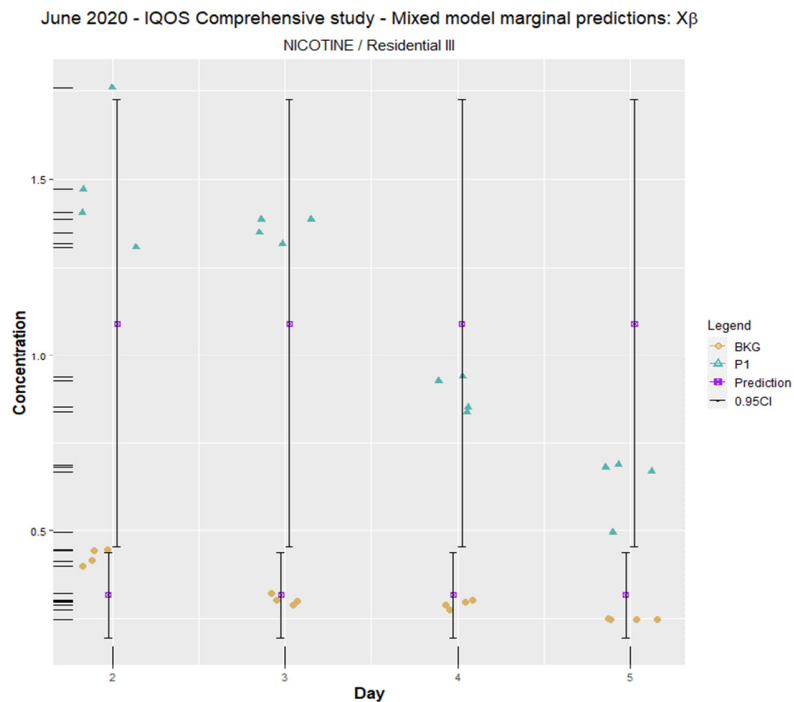
Covariance Parameter Estimates		
Cov Parm	Group	Estimate
Day	Background	0.0057
Day	THS	0.1566
Residual	Background	0.0002
Residual	THS	0.0125

day to day variance
day to day variance
Replicate to replicate variance
Replicate to replicate variance

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3.22	14.49	0.0282

Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	0.3171	0.0380	3	8.35	0.0036	0.05	0.1962	0.4380			
Mean THS	1.0913	0.1998	3	5.46	0.0121	0.05	0.4554	1.7271			
Mean THS - BKG	0.7742	0.2034	3	3.81	0.0282	0.1	0.3084	1.2400	244%	97%	391%
Mean THS - BKG	0.7742	0.2034	3	3.81	0.0282	0.05	0.1509	1.3975	244%	48%	441%



2. Statistical model for airborne acetaldehyde

Model Information	
Data Set	WORK.COMPHEH_IQOS
Dependent Variable	Reported_Conc
Covariance Structure	Variance Components
Group Effect	Condition
Estimation Method	REML
Residual Variance Method	None
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Satterthwaite

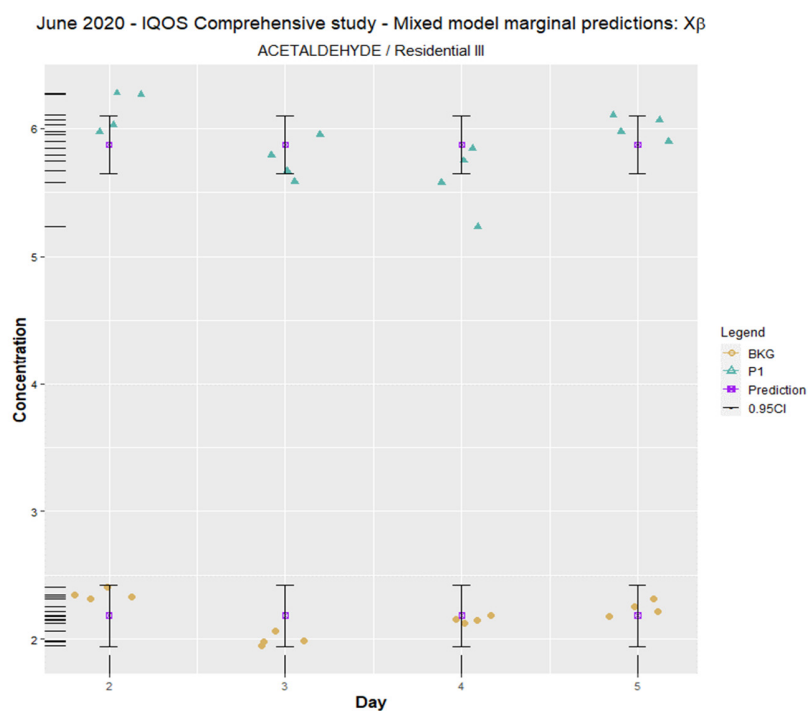
2.1. Data for airborne acetaldehyde at simulated Residential category III environmental condition ($0.5\ h^{-1}$)

Covariance Parameter Estimates		
Cov Parm	Group	Estimate
Day		0.0224
Residual	Background	0.0020
Residual	THS	0.0459

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	15.8	4539.4	<.0001

Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	2.1857	0.0757	3	28.9	<.0001	0.05	1.9449	2.4264			
Mean THS	5.8723	0.0921	6	63.8	<.0001	0.05	5.6494	6.0952			
Mean THS - BKG	3.6866	0.0547	16	67.4	<.0001	0.1	3.5910	3.7823	169%	164%	173%
Mean THS - BKG	3.6866	0.0547	16	67.4	<.0001	0.05	3.5705	3.8028	169%	163%	174%



2.2. Data for airborne acetaldehyde at simulated Store environmental condition ($2.4\ h^{-1}$)

Covariance Parameter Estimates			
Cov Parm	Estimate		
Day	0.7591	95%	
Condition*Day	0.0249	3%	
Residual	0.0174	2%	

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	115.9	0.0017

Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	2.7158	0.4440	3	6.12	0.0088	0.05	1.3030	4.1287			
Mean THS	4.0175	0.4440	3	9.05	0.0029	0.05	2.6046	5.4304			
Mean THS - BKG	1.3017	0.1209	3	10.8	0.0017	0.1	1.0171	1.5862	48%	37%	58%
Mean THS - BKG	1.3017	0.1209	3	10.8	0.0017	0.05	0.9168	1.6865	48%	34%	62%

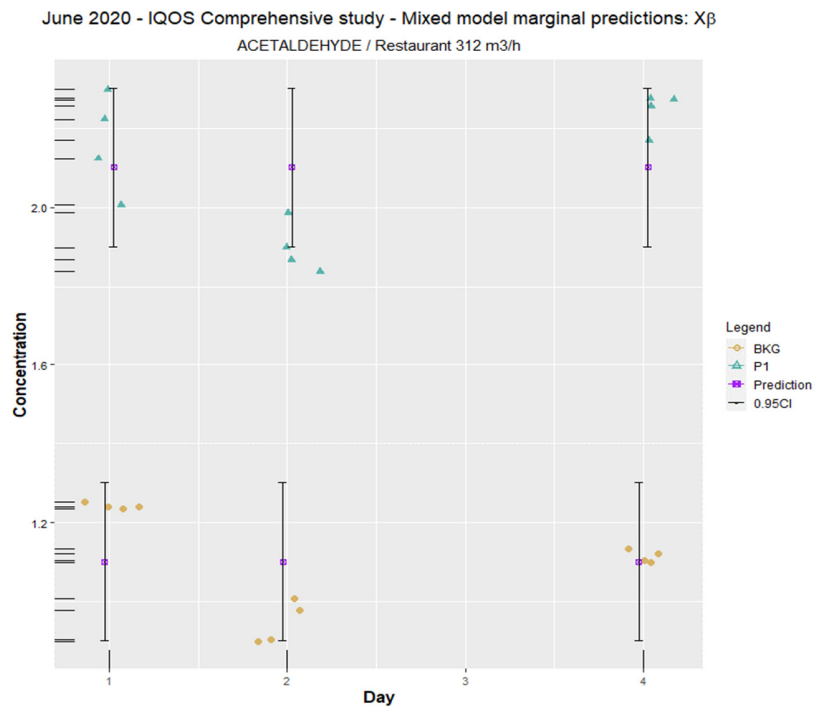
2.3. Data for airborne acetaldehyde at simulated Restaurant environmental conditions (4.3 h⁻¹)

Covariance Parameter Estimates				
Cov Parm	Estimate			
Day	0.0210	69%	day to day variance	
Condition*Day	0.0053	17%		
Residual	0.0043	14%	Replicate to replicate variance	

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	2	237.3	0.0042

Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	1.1010	0.0954	2	11.6	0.0074	0.05	0.6908	1.5113			
Mean THS	2.1015	0.0954	2	22.0	0.0021	0.05	1.6913	2.5118			
Mean THS - BKG	1.0005	0.0650	2	15.4	0.0042	0.1	0.8108	1.1901	91%	74%	108%
Mean THS - BKG	1.0005	0.0650	2	15.4	0.0042	0.05	0.7210	1.2799	91%	65%	116%



3. Statistical model for TVOC

Model Information	
Data Set	WORK.COMPRESH_IQOS
Dependent Variable	Reported_Conc
Covariance Structure	Variance Components
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Containment

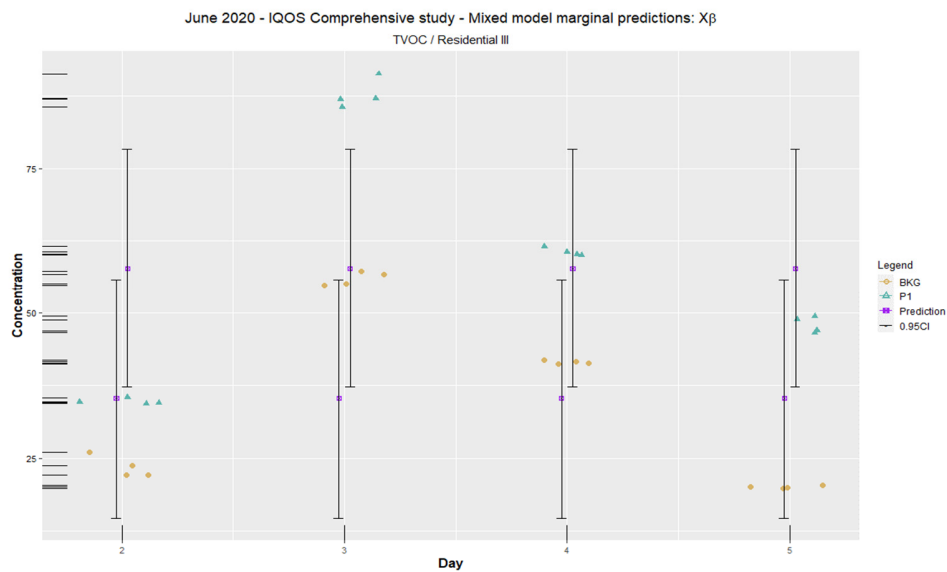
3.1. Data for TVOC at simulated Residential category III environmental condition ($0.5\ h^{-1}$)

Covariance Parameter Estimates			
Cov Parm	Estimate		
Day	353.1	89%	day to day variance
Condition*Day	41.65	11%	
Residual	1.7223	0%	Replicate to replicate variance

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	24.06	0.0162

Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	35.2785	9.9394	3	3.55	0.0381	0.05	3.6467	66.9102			
Mean THS	57.7792	9.9394	3	5.81	0.0101	0.05	26.1474	89.411			
Mean THS - BKG	22.5008	4.5872	3	4.91	0.0162	0.1	11.7054	33.2961	64%	33%	94%
Mean THS - BKG	22.5008	4.5872	3	4.91	0.0162	0.05	7.9022	37.0993	64%	22%	105%



3.2. Data for TVOC at simulated Store environmental condition ($2.4\ h^{-1}$)

Covariance Parameter Estimates		
Cov Parm	Estimate	
Day	1.1688	16%
Condition*Day	5.5294	76%
Residual	0.5939	8%

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	28.28	0.0130

Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	4.9257	1.3083	6	3.76	0.0099	0.05	1.7016	8.1498			
Mean THS	13.8866	1.3083	6	10.61	<.0001	0.05	10.6625	17.1107			
Mean THS - BKG	8.9609	1.6849	3	5.32	0.0130	0.1	4.9957	12.9261	182%	101%	262%

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean THS - BKG	8.9609	1.6849	3	5.32	0.0130	0.05	3.5988	14.3231	182%	73%	291%

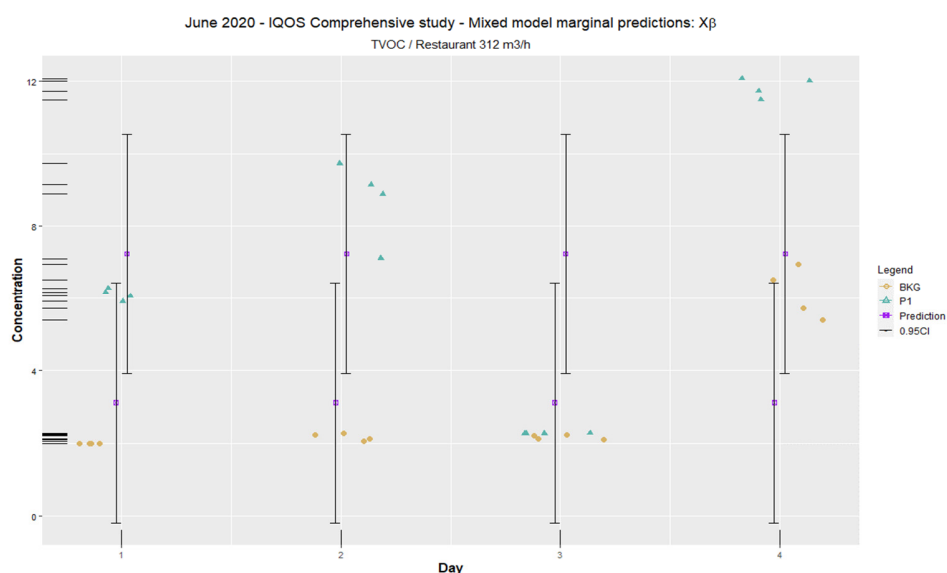
3.3. Data for TVOC at simulated Restaurant environmental condition (4.3 h⁻¹)

Covariance Parameter Estimates		
Cov Parm	Estimate	
Day	6.1526	59% day to day variance
Condition*Day	4.0196	39%
Residual	0.2367	2% Replicate to replicate variance

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	8.29	0.0636

Not Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	3.1218	1.5993	3	1.95	0.1460	0.05	-1.968	8.2115			
Mean THS	7.2326	1.5993	3	4.52	0.0202	0.05	2.1429	12.3224			
Mean THS - BKG	4.1109	1.4281	3	2.88	0.0636	0.1	0.7501	7.4716	132%	24%	239%
Mean THS - BKG	4.1109	1.4281	3	2.88	0.0636	0.05	-0.4338	8.6556	132%	-14%	277%



4. Statistical model for TVOC with subtraction of flavor compounds

Model Information	
Data Set	WORK.COMPREH_TVOC
Dependent Variable	Reported_Conc
Covariance Structure	Variance Components
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Containment

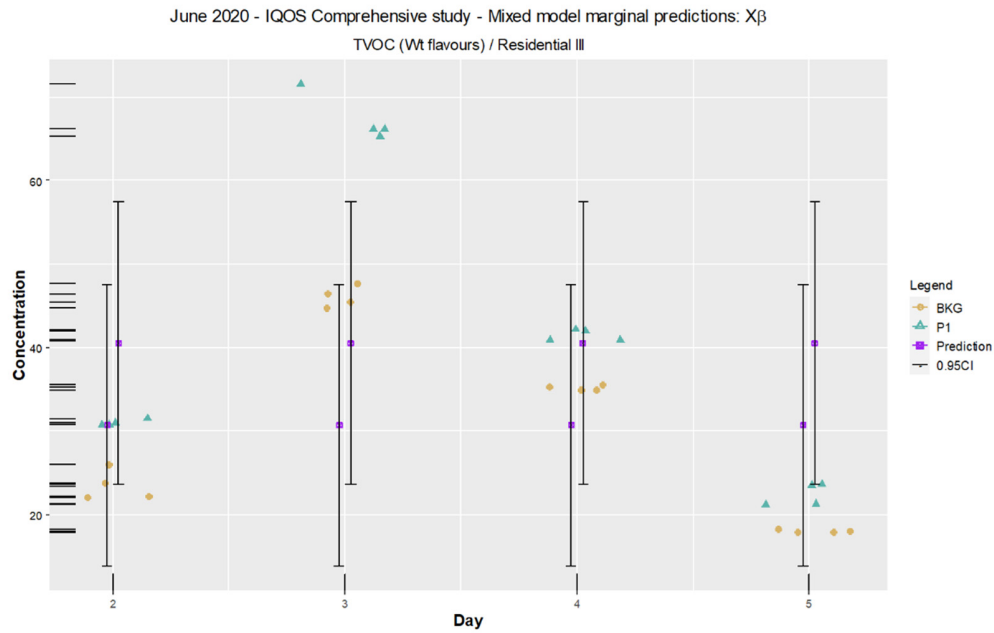
4.1. Data for TVOC with subtraction of flavor compounds at simulated Residential category III environmental condition (0.5 h^{-1})

Covariance Parameter Estimates			
Cov Parm	Estimate		
Day	238.3	88%	day to day variance
Condition*Day	29.19	11%	
Residual	1.9789	1%	Replicate to replicate variance

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	6.54	0.0834

Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	30.7008	8.1851	3	3.75	0.0331	0.05	4.6522	56.7494			
Mean THS	40.5511	8.1851	3	4.95	0.0158	0.05	14.5026	66.5997			
Mean THS - BKG	9.8503	3.8526	3	2.56	0.0834	0.1	0.7838	18.9169	32%	3%	62%
Mean THS - BKG	9.8503	3.8526	3	2.56	0.0834	0.05	-2.4103	22.111	32%	-8%	72%



4.2. Data for TVOC with subtraction of flavor compounds at simulated Store environmental condition (2.4 h^{-1})

Covariance Parameter Estimates		
Cov Parm	Estimate	
Day	0	0%
Condition*Day	11.8687	95%
Residual	0.5952	5%

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	6	10.09	0.0192

Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	4.9257	1.7333	6	2.84	0.0295	0.05	0.6844	9.1670			
Mean THS	12.7121	1.7333	6	7.33	0.0003	0.05	8.4708	16.9534			
Mean THS - BKG	7.7864	2.4513	6	3.18	0.0192	0.1	3.0232	12.5497	158%	61%	255%
Mean THS - BKG	7.7864	2.4513	6	3.18	0.0192	0.05	1.7884	13.7845	158%	36%	280%

4.3. Data for TVOC with subtraction of flavor compounds at simulated Restaurant environmental condition (4.3 h⁻¹)

Covariance Parameter Estimates				
Cov Parm	Estimate			
Day	3.5139	66%	day to day variance	
Condition*Day	1.5435	29%		
Residual	0.2515	5%	Replicate to replicate variance	

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	1.8	0.2717

Not Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	3.1218	1.1314	4	2.76	0.0498	0.05	0.0043	6.2392			
Mean THS	4.3257	1.1314	4	3.82	0.0181	0.05	1.2082	7.4431			
Mean THS - BKG	1.2039	0.8962	3	1.34	0.2717	0.1	-0.9052	3.313	39%	-29%	106%
Mean THS - BKG	1.2039	0.8962	3	1.34	0.2717	0.05	-1.6482	4.0561	39%	-53%	130%

5. Statistical model for airborne formaldehyde

Model Information	
Data Set	WORK.COMPRESH_IQOS
Dependent Variable	Reported_Conc
Covariance Structure	Variance Components
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Satterthwaite

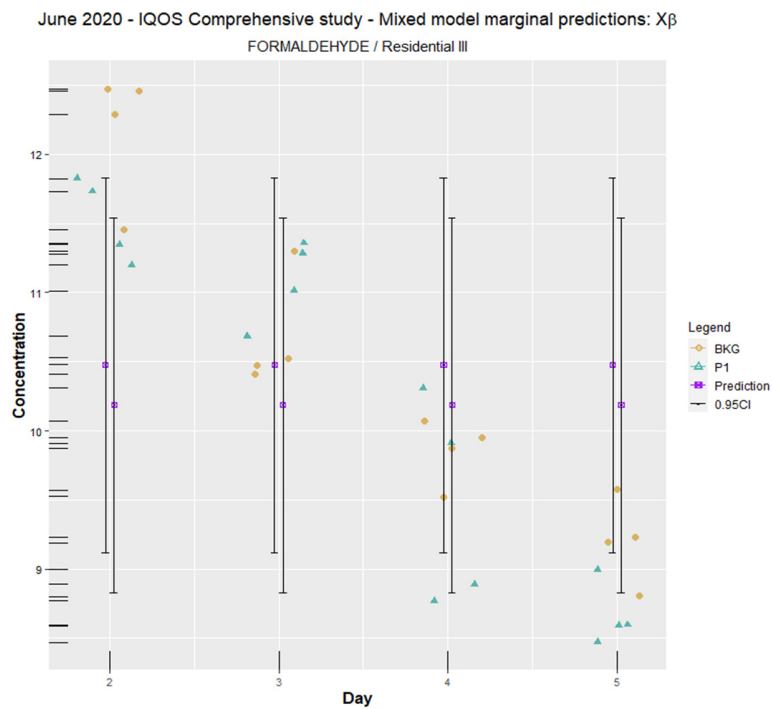
5.1. Data for airborne formaldehyde at simulated Residential category III environmental condition (0.5 h⁻¹)

Covariance Parameter Estimates				
Cov Parm	Estimate			
Day	1.6131	87%	day to day variance	
Condition*Day	0.0698	4%		
Residual	0.1715	9%	Replicate to replicate variance	

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	1.48	0.3104

Not Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	10.4746	0.6569	3	16.0	0.0005	0.05	8.3842	12.5650			
Mean THS	10.1856	0.6569	3	15.5	0.0006	0.05	8.0952	12.2761			
Mean THS - BKG	-0.2890	0.2374	3	-1.22	0.3104	0.1	-0.8476	0.2696	-3%	-8%	3%
Mean THS - BKG	-0.2890	0.2374	3	-1.22	0.3104	0.05	-1.0444	0.4664	-3%	-10%	4%



5.2. Data for airborne formaldehyde at simulated Store environmental condition (2.4 h^{-1})

Covariance Parameter Estimates		
Cov Parm	Estimate	
Day	2.09	90%
Condition*Day	0.2121	9%
Residual	0.0250	1%

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	0	0.9691

Not Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	6.8049	0.7597	3	8.96	0.0020	0.05	4.5061	9.1038			
Mean THS	6.7911	0.7597	3	8.94	0.0020	0.05	4.4922	9.0899			
Mean THS - BKG	-0.0139	0.3304	3	-0.04	0.9691	0.1	-0.7915	0.7638	0%	-12%	11%
Mean THS - BKG	-0.0139	0.3304	3	-0.04	0.9691	0.05	-1.0655	1.0377	0%	-16%	15%

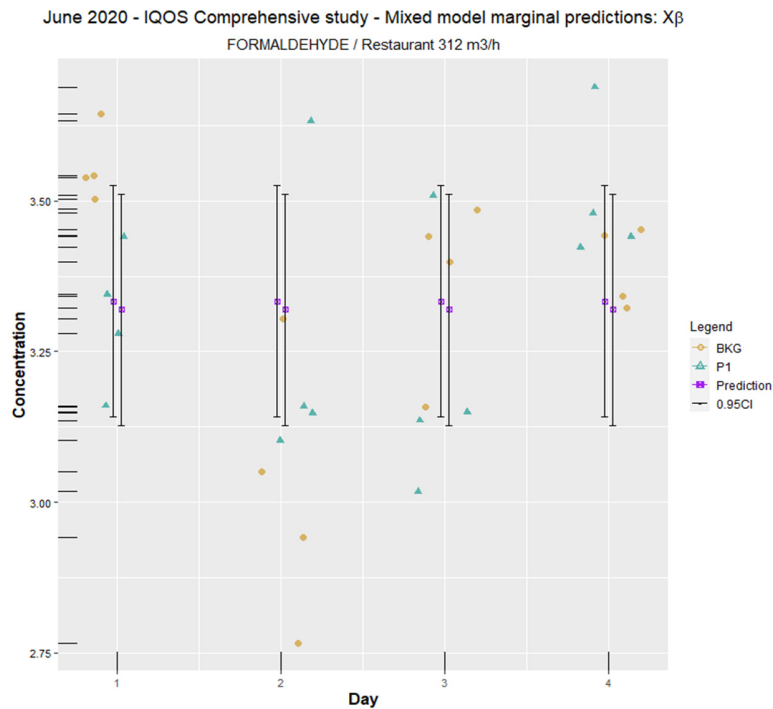
5.3. Data for airborne formaldehyde at simulated Restaurant environmental condition (4.3 h⁻¹)

Covariance Parameter Estimates			
Cov Parm	Estimate		
Day	0.0074	13%	day to day variance
Condition*Day	0.0206	37%	
Residual	0.0270	49%	Replicate to replicate variance

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	0.01	0.9124

Not Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	3.3334	0.0931	3	35.8	<.0001	0.05	3.0370	3.6297			
Mean THS	3.3194	0.0931	3	35.6	<.0001	0.05	3.0230	3.6158			
Mean THS - BKG	-0.0140	0.1169	3	-0.12	0.9124	0.1	-0.2890	0.2610	0%	-9%	8%
Mean THS - BKG	-0.0140	0.1169	3	-0.12	0.9124	0.05	-0.3859	0.3579	0%	-12%	11%



6. Statistical model for airborne benzene

Model Information	
Data Set	WORK.COMPREH_IQOS
Dependent Variable	Reported_Conc
Covariance Structure	Variance Components
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Containment

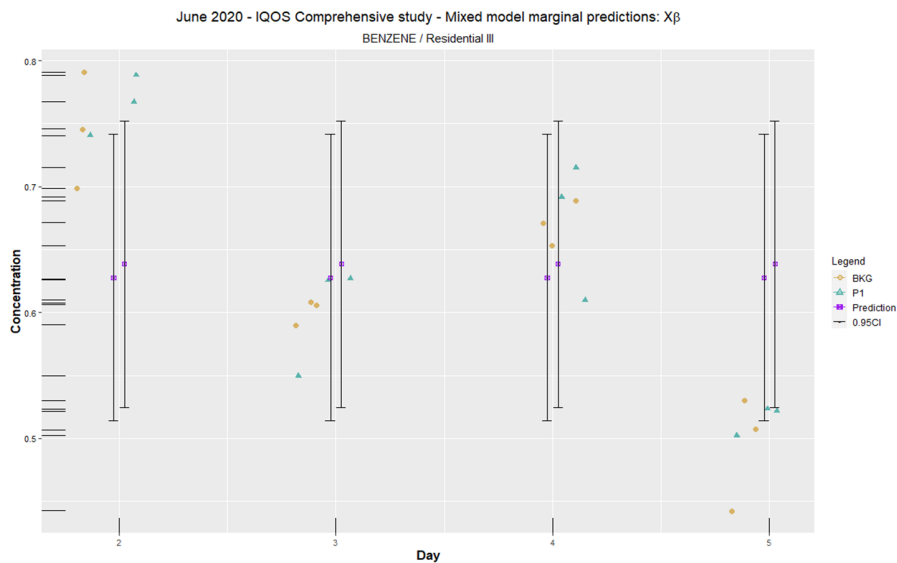
6.1. Data for airborne benzene at simulated Residential category III environmental condition (0.5 h^{-1})

Covariance Parameter Estimates			
Cov Parm	Estimate		
Day	0.0112	91%	day to day variance
Condition*Day	0.0000	0%	
Residual	0.0011	9%	Replicate to replicate variance

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	0.63	0.4851

Not Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	0.6277	0.0537	3	11.7	0.0013	0.05	0.4568	0.7985			
Mean THS	0.6385	0.0537	3	11.9	0.0013	0.05	0.4677	0.8094			
Mean THS - BKG	0.0109	0.0137	3	0.79	0.4851	0.1	-0.0213	0.0430	2%	-3%	7%
Mean THS - BKG	0.0109	0.0137	3	0.79	0.4851	0.05	-0.0326	0.0543	2%	-5%	9%



6.2. Data for airborne benzene at simulated Store environmental condition (2.4 h^{-1})

Covariance Parameter Estimates			
Cov Parm	Estimate		
Day	0		0%
Condition*Day	0.0014		73%
Residual	0.0005		27%

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	6	3.1	0.1286

Not significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	0.3622	0.0195	6	18.55	<.0001	0.05	0.3144	0.4100			
Mean THS	0.3136	0.0195	6	16.06	<.0001	0.05	0.2658	0.3613			
Mean THS - BKG	-0.0486	0.0276	6	-1.76	0.1286	0.1	-0.1023	0.0050	-13%	-28%	1%

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean THS - BKG	-0.0486	0.0276	6	-1.76	0.1286	0.05	-0.1162	0.0189	-13%	-32%	5%

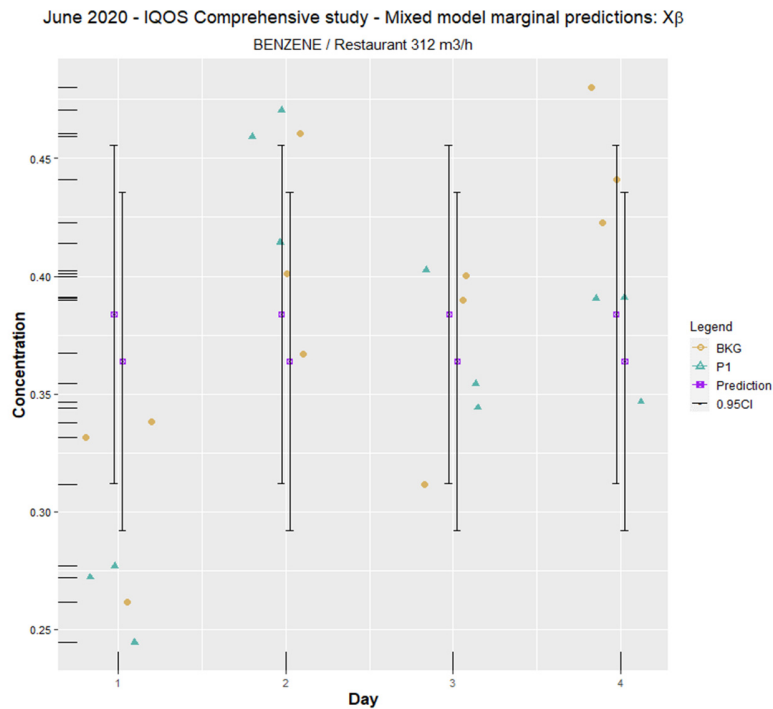
6.3. Data for airborne benzene at simulated Restaurant environmental condition (4.3 h^{-1})

Covariance Parameter Estimates		
Cov Parm	Estimate	
Day	0.0034	63% day to day variance
Condition*Day	0.0008	14%
Residual	0.0013	23% Replicate to replicate variance

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	0.67	0.4744

Not Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	0.3838	0.0339	3	11.3	0.0015	0.05	0.2759	0.4917			
Mean THS	0.3638	0.0339	3	10.7	0.0017	0.05	0.2560	0.4717			
Mean THS - BKG	-0.0199	0.0244	3	-0.82	0.4744	0.1	-0.0775	0.0376	-5%	-20%	10%
Mean THS - BKG	-0.0199	0.0244	3	-0.82	0.4744	0.05	-0.0977	0.0579	-5%	-25%	15%



7. Statistical model for airborne isoprene

Model Information	
Data Set	WORK.COMPRESH_IQOS
Dependent Variable	Reported_Conc
Covariance Structure	Variance Components
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Containment

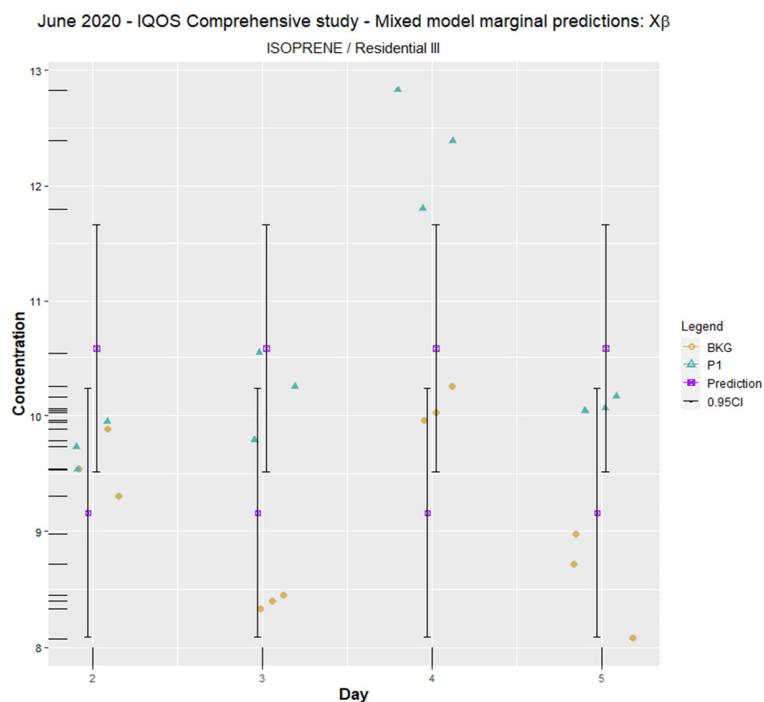
7.1. Data for airborne isoprene at simulated Residential category III environmental condition ($0.5\ h^{-1}$)

Covariance Parameter Estimates			
Cov Parm	Estimate		
Day	0.6145	57%	day to day variance
Condition*Day	0.3728	34%	
Residual	0.0987	9%	Replicate to replicate variance

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	10.04	0.0505

Not significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	9.1612	0.5050	3	18.1	0.0004	0.05	7.5540	10.7684			
Mean THS	10.5886	0.5050	3	21.0	0.0002	0.05	8.9814	12.1958			
Mean THS - BKG	1.4273	0.4504	3	3.17	0.0505	0.1	0.3675	2.4872	16%	4%	27%
Mean THS - BKG	1.4273	0.4504	3	3.17	0.0505	0.05	-0.0059	2.8606	16%	0%	31%



7.2. Data for airborne isoprene at simulated Store environmental condition ($2.4\ h^{-1}$)

Covariance Parameter Estimates			
Cov Parm	Estimate		
Day	0.3133	59%	
Condition*Day	0.1836	35%	
Residual	0.0318	6%	

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	2.2	0.2346

Not significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	4.4314	0.3562	4.34	12.4	0.0001	0.05	3.4726	5.3901			
Mean THS	4.8936	0.3562	4.34	13.7	<.0001	0.05	3.9348	5.8523			
Mean THS - BKG	0.4622	0.3116	3	1.48	0.2346	0.1	-0.2711	1.1955	10%	-6%	27%
Mean THS - BKG	0.4622	0.3116	3	1.48	0.2346	0.05	-0.5295	1.4539	10%	-12%	33%

7.3. Data for airborne isoprene at simulated Restaurant environmental condition (4.3 h⁻¹)

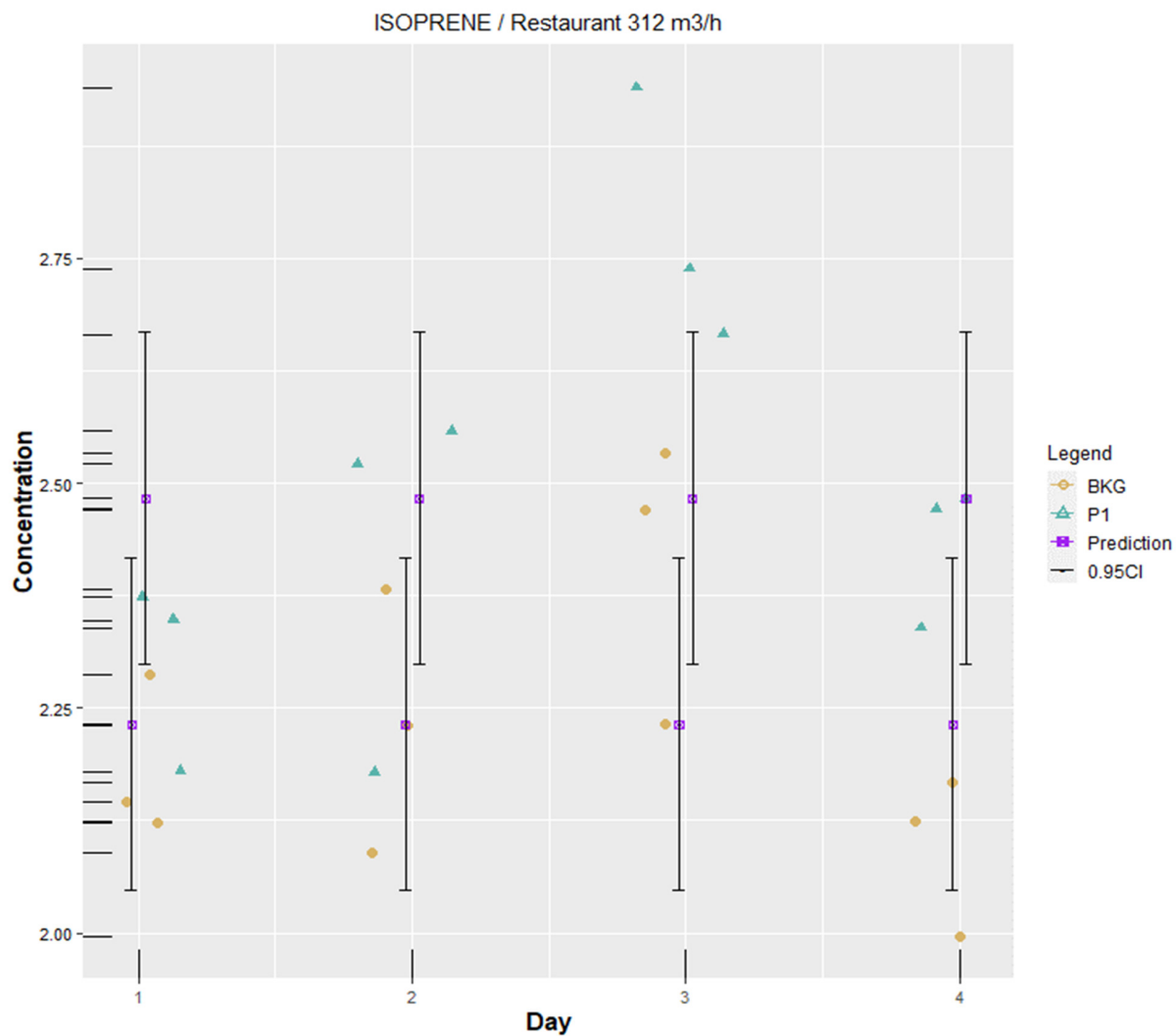
Covariance Parameter Estimates		
Cov Parm	Estimate	
Day	0.0231	54% day to day variance
Condition*Day	0.0013	3%
Residual	0.0180	43% Replicate to replicate variance

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	17.3	0.0254

Significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	2.2319	0.0871	3	25.6	0.0001	0.05	1.9546	2.5092			
Mean THS	2.4829	0.0871	3	28.5	<.0001	0.05	2.2057	2.7602			
Mean THS - BKG	0.2510	0.0605	3	4.15	0.0254	0.1	0.1088	0.3933	11%	5%	18%
Mean THS - BKG	0.2510	0.0605	3	4.15	0.0254	0.05	0.0587	0.4434	11%	3%	20%

June 2020 - IQOS Comprehensive study - Mixed model marginal predictions: $X\beta$



8. Statistical model for airborne toluene

Model Information	
Data Set	WORK.COMPHEH_IQOS
Dependent Variable	Reported_Conc
Covariance Structure	Variance Components
Estimation Method	REML
Residual Variance Method	Profile
Fixed Effects SE Method	Model-Based
Degrees of Freedom Method	Containment

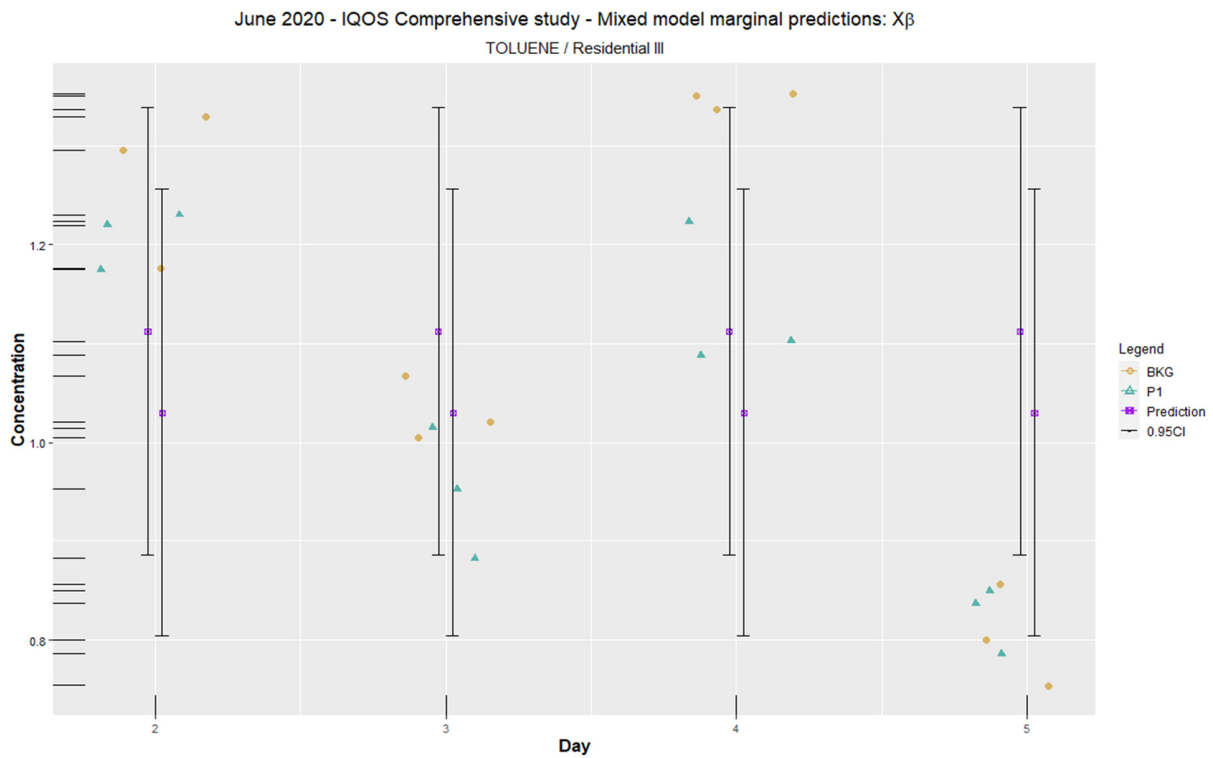
8.1. Data for airborne toluene at simulated Residential category III environmental condition (0.5 h^{-1})

Covariance Parameter Estimates		
Cov Parm	Estimate	
Day	0.0410	87% Day to day variance
Condition*Day	0.0036	8%
Residual	0.0028	6% Replicate to replicate variance

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	2.96	0.1837

Not significant effect of Condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	1.1121	0.1067	3	10.4	0.0019	0.05	0.7724	1.4517			
Mean THS	1.0302	0.1067	3	9.65	0.0024	0.05	0.6906	1.3698			
Mean THS - BKG	-0.0819	0.0476	3	-1.72	0.1837	0.1	-0.1938	0.0301	-7%	-17%	3%
Mean THS - BKG	-0.0819	0.0476	3	-1.72	0.1837	0.05	-0.2333	0.0695	-7%	-21%	6%



8.2. Data for airborne toluene at simulated Store environmental condition (2.4 h⁻¹)

Covariance Parameter Estimates		
Cov Parm	Estimate	
Day	0.1942	73%
Condition*Day	0.0670	25%
Residual	0.0065	2%

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	0.46	0.5451

Not significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	1.2617	0.2566	4	4.92	0.0085	0.05	0.5411	1.9824			
Mean THS	1.1352	0.2566	4	4.42	0.0122	0.05	0.4145	1.8558			
Mean THS - BKG	-0.1265	0.1860	3	-0.68	0.5451	0.1	-0.5643	0.3112	-10%	-45%	25%
Mean THS - BKG	-0.1265	0.1860	3	-0.68	0.5451	0.05	-0.7185	0.4654	-10%	-57%	37%

8.3. Data for airborne toluene at simulated Restaurant environmental condition (4.3 h⁻¹)

Covariance Parameter Estimates		
Cov Parm	Estimate	
Day	0.0283	85% day to day variance
Condition*Day	0.0015	5%
Residual	0.0036	11% Replicate to replicate variance

Type 3 Tests of Fixed Effects				
Effect	Num DF	Den DF	F Value	Pr > F
Condition	1	3	0.21	0.6754

Not significant effect of condition factor

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean BKG	0.7175	0.0881	3	8.15	0.0039	0.05	0.4373	0.9978			
Mean THS	0.7005	0.0881	3	7.96	0.0041	0.05	0.4203	0.9807			

Estimates									Relative effect		
Label	Estimate	SE	DF	t Value	Pr > t	Alpha	LCI	UCI	Estimate	LCI	UCI
Mean THS - BKG	-0.0170	0.0369	3	-0.46	0.6754	0.1	-0.1038	0.0697	-2%	-14%	10%
Mean THS - BKG	-0.0170	0.0369	3	-0.46	0.6754	0.05	-0.1344	0.1003	-2%	-19%	14%

